ISSUED TO : **Price Rs. 1000/-**
DATE :

INSTITUTE OF TECHNOLOGY, KORBA (C.G.)

TENDER DOCUMENTS FOR

SUPPLY OF LAB EQUIPMENT FOR CIVIL ENGINEERING DEPARTMENT

BID SECURITY (EMD): 3% Of Quoted Amt.

Last date of selling tender document :	25/4/2011 at 15.00 hrs.
Last date of submission of tender document :	26/4/2011 at 13.00 hrs.
Date of opening of tender document :	26/4/2011 at 14.00 hrs.

ADDRESS FOR COMMUNICATION

PRINCIPAL,
INSTITUTE OF TECHNOLOGY, KORBA (C.G.)
GOVT. POLYTECHNIC CAMPUS, RUMGARA, KORBA-495684
PHONE NO.07759-217435, 094241-44099, FAX NO.07759-228605
E-mail: korbait@rediffmail.com, Website: www.itkorba.com

INSTITUTE OF TECHNOLOGY, KORBA (C.G.)

GOVT. POLYTECHNIC CAMPUS, RUMGARA, KORBA-495684

PHONE NO.07759-217435, 094241-44099, FAX NO.07759-228605

E-mail: korbait@rediffmail.com, Website: www.itkorba.com

No ITK/PUR/2011/ 444 Korba, dated24/3/2011

NOTICE INVITING TENDER

The Institute of Technology, Korba run by Institute of Technology Korba Society invites tender from experienced suppliers/publishers/agencies for the Supply of Lab. Equipments/Books for Mechanical Engg., Civil Engg., Electrical & Electronics Engg., Computer Science & Engg., Library with following terms & conditions:-

01. Tender document can be obtained by the prospective tenderer on payment of Rs.1000/-(Rs. One Thousand only) in cash or through demand draft in favour of "Principal Institute of Technology, Korba (C.G.)" payable at Korba From 25/3 / 2011 to 25/4/ 2011 during working hours or can be downloaded from our website *www.itkorba.com*. The additional DD of Rs.1000/-(Rs. One thousand only) as tender document fee must be submitted with downloaded tender document.

02. Tender must be delivered to I.T.Korba through Registered post or speed post or couriers or by hand on or before 13.00 hours on 26/4 /2011 and will be opened on the same day at 14.00 hours in the presence of the tenderer who wishes to attend/purchase committee of I.T.Korba.

03. Other details/terms & conditions can be seen on tender document. Separate tender forms should be purchased and submitted for each branch (Category).

04. The Undersigned has the right to reject any or all tenders without assigning any reason.

05. The tender docuement must be submitted in sealed envelope. At the top of the envelope tender **bid.no. & date** should be mentioned.

Principal
Institute of Technology
Korba(C.G.)

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CATEGORY : CIVIL ENGINEERING

Terms and Conditions

(The tenderer is required to submit soft copy of offer along with hard copy)

Copy of Terms and condition for supply of equipment etc. required for the Institute of Technology, Korba, (Chhattisgarh) applicable to categories 1 to 4

1. The tender is liable to be rejected if not submitted as per the following condition without asking any further clarification.
2. The tender contains Four parts viz. (1) Mechanical Engg. (2) Civil Engg. (3) Electrical and Electronics Engg. (4) Computer Science Engg. and each part of the tender contains two stage bidding: Technical and commercial bids.
3. Separate tender documents should be submitted for technical bidding (only the technical specification) and commercial bidding and the sealed tender should be clearly marked as technical bid and commercial bid on the top of the envelope, for each part of the tender. The envelope should be marked the part number for which it meant.
4. Commercial bids of those tenders, which are found technically suitable, will only be opened and considered for the items technically approved.
5. Commercial bid opening dates will be finalized after opening of technical bids and shall be informed to the technically approved tenderers separately.
6. The tenderer may be asked to give demonstration of the trainer/ equipment /software preferably at Korba.
7. The tender (Technical Bid) will be opened as per the date and time given above in the presence of such tenderers or their representatives who are desirous to be present.
8. Tender received after due date and time will not be entertained.
9. The tender form is non transferable.
10. Tender should be submitted in Duplicate. They should be tagged separately and marked as original and duplicate.
11. Item no. and page no. of the tender form should be strictly in chronological order.
12. Make, name of the manufacturer with complete address should be mentioned against each item and equipment.
13. Printed condition on the back of the tender will not be binding unless separately mentioned. Copies of the terms and condition should be furnished in duplicate.

14. The tenderer must furnish complete and detailed specification supported by printed literature of the equipment offered. Incomplete specifications /absence of printed literature support will result in the rejection of the tender.

15. The rate should be FOR destination including Excise and PFFI. Nothing extra will be paid in such case except the VAT/CST on the cost of the equipment.

16. If rate are quoted ex-go down /ex-factory then Excise duty, and PFFI charge should be clearly indicated for proper rate compatibility/comparability.

17. Taxes, if viable extra, should be clearly indicated failing which the rate quoted in the tender will be considered as inclusive of all taxes.

18. The supplier will have to get the equipment delivered in the institution and then only the payment will be made in rupees.

19. There should be no alterations/corrections made in the quotation. Quotation should always be in figures and words.

20. The tender should clearly indicate whether the equipment is complete in itself. If in the opinion of the tenderer, certain accessories / safety devices are necessary with the type of the equipment tendered, he may quote for them under the **heading Extra but Essential**.

21. As per the order of the state Govt. small scale industries registered with the Industries department of Chhattisgarh Govt. are to be given a price preference of 10% while comparing rate with the other suppliers for equipment produced /manufactured by them. In order to avail this preference the tendered should furnish a certified/Photostat copy of the registration along with the tender.

22. The tenderer is required to deposit 03% of the quoted amount as EMD. The EMD should be deposited, separate for each category, in the form of Demand Draft drawn in favour of Principal Institute of Technology, Korba (Chattisgarh) against tender No ITK/PUR/EQUIP/2011/444 refundable under the order of, Principal, Institute of Technology, Korba (Chhattisgarh). Tender received without EMD will be rejected. Requests for relaxing EMD will not be entertained. EMD by cheque / bank guarantee / Money Order will not be accepted.

23. Demand Draft for the EMD should be submitted along with the technical bid of the tender and a photocopy of the same may be submitted with the commercial bid.

24. In case of non-acceptance of the tender, the EMD will be refunded to the tenderer in course of time. The EMD will be treated as security deposit in case of selected tenders. EMD /Security deposit will be forfeited in case of breech of agreement of supply by the tenderer (supplier).

25. The order shall stand cancelled and security forfeited
    i. if supplier expresses his inability to execute the order for the quoted items within validity period of the tender at the rate quoted in the tender and for makes / brand quoted in the tender.
    ii. If the complete equipment is not supplied within the delivery period mentioned in the order or within the extended period permitted.
    iii. If the supplier executes only part of tender.

26. Any Equipment / Trainers, Hardware or software breakdown must be attended within 48 hours during the warranty period of the equipment/software free of cost.

27. Payments will be released after the successful installation and demonstration at the institution.

28. Extension in the delivery period may be granted at the discretion of the undersigned. The penalty at a rate of 1% per month of the full cost of the equipment is liable to be charged for the extension of the delivery period. Equipment received after the delivery period or dispatched after the delivery period mentioned in the order will also be subjected to this penalty.

29. In case of any default in execution the order, the undersigned reserves the right to forfeit the EMD /Security deposit. The undersigned also reserves the right to cancel the order and forfeit the

EMD/Security deposit in case the tenderer fails to adhere strictly to all terms and condition of the order.

30. If defects of any kind or deviations from the specification are detected and reported to the supplier, the supplier should make replacement or rectify the defects free of cost within 30 days from the date of report, failing which the equipment will not be accepted and will be returned to the supplier at his own cost and risk, and the EMD will be forfeited. In case the equipment is sent for repairs to the firm, it should be repaired with in 30 days, from the date of receipt of equipment failing which the same will not be accepted and EMD will be forfeited. However the undersigned may condone the delay in deserving cases at his discretion.

31. The undersigned reserves the right to increase/decrease the quantity of the equipment to be supplied.

32. The submission of the tender will deemed to be the acceptance of all the terms and condition of the tender as stated herein and/or elsewhere in the tender document.

33. Tenders should be valid for at least six months from the date of opening the commercial bid of the tender. The prices should be firm without variations of any kind.

34. The institution will issue “D” FORM duly complete and signed by the competent authority for reduction in CST at the time of final payment.

35. The undersigned reserves the right to accept the lowest or any tender and also of rejecting all or any tender without assigning any reasons for the same or to split up the tender as he may deem fit.

36. Request for the supply of any details in the respect of quotation or comparative chart or any other enquiry in respect of the tenders received will not be entertained. Exact and earliest possible time of delivery should be indicated in the tender against each item. Other things, being equal, the tenders who give earliest delivery period will be preferred while comparing the rates. The delivery period given in the order will be the date of receipt of the equipment in the institute and not the date of dispatch of the equipment by the supplier.

37. Sealed envelop for the tender should be super scribed as Tender Notice No ITK/PUR/EQUIP/2011/444 along with the category applied for and should be addressed to Principal, Institute of Technology, Korba (Chhattisgarh). S.No. and Name of the Category for which the tender is submitted, should be clearly mentioned

38. Materials / Equipments sent through courier / cargo services will not be accepted unless the presence of any representative from supplier No advance payment, either with the tenderer or agent R/R will be made to any supplier, please note that any other payment terms or such type are not negotiable.

39. Latest Income tax Clearance and CST Clearance certificate from the concerned authority should be attached with the tender. Tender received without this certificate will be rejected.

40. The supplier should have at least three years experience in concerned field. In support of experience the supplier should attach xerox copies of purchase and execution report of supply for the period.

41. The minimum guarantee period for the equipment supplied by the supplier will have to be given which should not be less than one year from the date of installation. Security Deposite/ EMD of order will be returned only after expiry of guarantee period. The tenderer will be required to undertake repair/replacement of defective parts free of cost at the institution.

42. All the disputes with regard to the contract of purchase of equipment etc. will be subjected to Korba jurisdiction only.

43. In the event of the order, supplier who are the manufacturer of the equipment will be required to furnish a certificate to the effect that they are manufacturers of such and such make whereas the authorized agent of stockiest will have to furnish certificate assigned by the manufacturer

certifying that M/S is their authorized agent/stockiest under brand. No equipment without this certificate will be accepted..

44. The equipment /machinery calibrated in metric system need be quoted.

45. The tender shall guarantee that after sales service shall be provided as and when required.

46. The supplier should render necessary assistance, if required, in the installation of the equipment /machinery in the institute free of charge.

47. No offer should be made for imported item for which import license has to be arranged by the undersigned. The entire imported item will have to be delivered in the institute and payment will be made in Rupees only.

48. Other terms and condition will be as per C.G. State government store purchase rule

Principal
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ANNEXURE-I

(Proforma for Technical Bid)

The offer should be submitted in the following format only:

S.No.	Name of Item along with Make	Specifications given in the Tenders	Technical Specifications which the bidder wants to supply as for Catalogue/ Brochure (Specification must not be less than given specification)	Deviation	Remarks

NOTE: Attach Catalogue/Brochure in original for above quoted Items. The quoted items should conform to BIS standards.

ANNEXURE-II

(Proforma for Commercial Bid)

The offer should be submitted in the following format only:

S.No.	Name of Item along with Make	Specifications given in the Tenders	Technical Specifications which the bidder wants to supply as for Catalogue/ Brochure (Specification must not be less than given specification)	Price of Equipment	Cost of equipment Inclusive of Taxes & all charges	Remarks

NOTE: Attach Catalogue/Brochure in original for above quoted Items. The quoted items should conform to BIS standards.

ANNEXURE-III

ACKNOWLEDGEMENT

This is to acknowledge the receipt of your Demand Draft/ IPO No. ……..... Dated …… For Rs. ……..

Principal
Institute of Technology
Korba

(To be signed and returned along with the tender)

I/We (Full Name) ……..……...

Address ……. …….. have read the tender rules for the supply of various stores as per tender notice to the Principal, Institute of Technology, Korba (C.G.) and I/We fully accept the bidding rules supplied to me/us with the bidding documents.

Date: ……. Signature: (Name & Full Address of the Firm)

ANNEXURE-IV

TENDER FORM FOR SUPPLY OF LAB EQUIPMENTS/ SOFTWARE

The tender form dully filled and accompanied by necessary documents in a sealed cover addressed to Principal, Institute Technology, Korba Vill: Rumgara P.O. Balco Nagar, Korba (C.G.) should reach by 13:00on or before 26/ 04 /2011.

Requisite Information

1. Name of the Applicant/Firm:
2. Address: (Attach documentary proof)
3. Constitution of the Applicant: Manufacturer /Authorized Dealer /Company/Proprietor/Partner
4. Telephone Nos. & Email:
5. Turnover for the last three years: (Attach documentary proof)
6. List of regular clients with the: name of contact person and telephone No.
7. Permanent Account No. (PAN): (Attach photocopy)
8. Traders Identification No. (TIN),: if any(Attach photocopy)
9. Registration No. Under CST, if any: (Attach photocopies)
10. BIS/ISI/ISO Membership No., if any(Attach photocopy)
11. Details of certified banker's: cheque /demand draft for Bid Security Deposit (EMD)
12. Percentage of discount offered: (To be mentioned in figure & words)

Signature: ……(Authorized signatory)

Name: ……

Designation: …….

Stamp of Applicant

CATEGORY – 02 CIVIL ENGINEERING

01. CONCRETE LAB

S. NO.	EQUIPMENT REQUIRED	SPECIFICATION	APPROX. QTY.	QUOTED UNIT PRICE (Rs.)
1	Vee-Bee Consistometer Aim demonstration of workability by Vee-Bee test	VEE BEE CONSISTOMETER As per IS: 1199 The instrument should be used for workability as well as consistency for fresh concrete. The equipment consists of : A Vibrating Table size 380mm long and 260mm wide, complete with start/stop switch, cord and plug. A holder is fixed to the base into which a swivel arm is telescoped with funnel and guide sleeve. A graduated rod is fixed on a swivel arm and its end a plastic disc is screwed. The division of scale on the rod record, the slump of the concrete in millimeters, supplied complete with a sheet metal container with lifting handles which can easily be fixed to the Vibrating Table. A slump cone open at both ends with lifting handles and a Tamping rod of size 16mm dia and 600mm long, rounded at one end. with all accessories and safety devices (if required) conforming to ISI/BIS/ISO	1	
2	Flexure Testing Machine.Aim :determination of flexural strength of concrete	•Flexural testing machine upto 100 KN capacity hand operated For 10 x 10 x 50 and 15 x 15 x 70 cms concrete beams as per IS-516-1959, IS: 4696. •Complete with Hydraulic Load gauge 0-100 KN x 0.5 kN/div. With Calibration certificate. Hand operated Loading unit 100 KN cap. with a self retracting type jack & a hand operated hydraulic Pump, Load gauge with maximum load indicating pointer, •The machine has a set of platens, top platen has a self aligning roller fixed at the center and lower one has two rollers of 25 mm dia, equally spaced at a distant of 15 cm. •These rollers are hard chrome plated to increase the abrasion resistance and hardness. Type of Loading: Third point. with all accessories and safety devices (if required) conforming to ISI/BIS/ISO	1	

3	Sieve Shaker	Sieve shaker electrically for 200 mm dia with Digital timer 0-99 min. Motorized Sieve Shaker: The Sieve Shaker can carry upto 8 Sieves . It is driven by a 1/4 H.P. Motor The Sieve table is inclined from the vertical axis & the direction of inclination changes progressively in the clockwise direction. In the addition to the gyratoiy motion of the table , there is tapping motion as well. Operating on 220 V single phase AC. A Digital timer adjustable from 0-99 minutes is incorporated as an integral part of equipment. Accessories: Adaptor for 300 mm dia..As per IS standard and ISI mark.	1	

02. ENVIRONEMENTAL ENGINEERING -1 LAB

S. NO.	EQUIPMENT REQUIRED	SPECIFICATION	APPROX. QTY.	QUOTED UNIT PRICE (Rs.)
1	pH meter Aim: 1.To determine acidity of water sample 2.To determine alkality of water sample. 3.To determine hardness of water sample. 4.determination of pH of water.	Should be Highly Stable & Accurate with Cell Constant adjushment Facility, having 31/2 Digit Red LED Display,Rugged & Reliable Design .Specifications Range -0 to 14.00 pH Resolution -0.01 pH Accuracy (mV)-+0.01 pH + 1 digit, +1mV Display -3 1/2 Digit LED Temperature Compensation -0 to 100oC Input Impedence > 1012OHMS Slope Control -80 to 120% Power -230V +10% AC, 50Hz Weight -3 Kg. (Approx) Accessories :- Combination pH Electrode(1 No.), Buffer Tablets(1 No.), Operation Manual(1 No.), Electrode Stand(1 No.), Dust Cover(1 No.).as per IS standard & ISI mark..	**1**	
2	Microscope	MICROSCOPE HAVING : (1) One-piece Aluminum die casted body with acid resistance paint finish (2) Latest design Compensation free side top of 30 deg. Inclined binocular head for comfort viewing, IPD 55 75mm adjustment, one eyepiece tube diameter adjustment ring is standard feature (3) Ball bearing mounted quadruple nose-piece positioned face inward so that objective will not interfere with operator (4) LB CF Contrast Parfocal 4x, 10x, 40x, 100x Oil Imm. DIN Standard (5) WF 10x FN18mm paired (6) 140X130mm double layer ball bearing mounted guide ways co-axial mechanical stage with low position right hand knobs for X-Y direction 75x50 mm movement reading up to 0.1mm (7) Co-axial coarse and fine focusing mechanism is designed for high frequent use provides a smooth adjustment, coarse focus with upper limit stopper. Fine focus graduated to 0.002mm (8) Extremely efficient condenser system N.A. 1.25 abbe's design for high contrast image 1-27mm opening iris diaphragm (9) Built-in 6v-20w halogen light illumination with intensity regulator, input 220-230v AC 50Hz (10) All electrical fittings are as per CE standards. (11) Microscope should equipped with Compensation free Trinocular head with 2 position light sliding system. (1) 100 % light to Binocular eyepiece (2) 70 % light to Camera and 30 % light to binocular eyepiece. (12) Standard Accessories : One spare bulb, Blue & green filter, 10ml 1mm Oil, Dustcover, Instruction/ working manual in English, Plywood box with lock & key.	**1**	

		Simple Polarizing attachment, Measuring scales and eyepieces, Photography Camera.As per IS standard & ISI mark.		
3	Muffle Furnace	HIGH TEMPERATURE FURNACE TEMP. RANGE 1450ºC The unit should be specially designed to meet the requirements of high Temperature.The basic unit should be made of M.S, reinforced with iron angles duly powder Coated Paint. The chamber made of ceramic Zirconium Board and elementsAre placed horizontally in the chamber. Heating is done by silicon carbide Rods duly controlled by accurate step down transformer (Air cooled).The furnace have outstanding Temperature reliability and large surface.Thermal efficiency and power consumption. Control panel is fitted With Digital Temperature Indicator Cum Controller. & provided separately Having Ammeter and Volt Meter etc. WorkingTemperature up to 1400ºC.To work on 220 volts Single Phase AC supply. Chamber size:150x150x300 mm (6"x6"x 12") approx..As per IS standard & ISI mark.	1	
4	Digital TDS Meter	Digital TDS Meter should be useful for fast and accurate determination of total dissolved solids in a liquid. The results are displayed on a 3½ digit bright red LED display. The instrument measures TDS in five ranges. It has a Check facility to calibrate the instrument. The cell constant is flashed on a digital display and can be adjusted from the front panel. The use of solid state technology and IC circuitry makes this instrument versatile and reliable. The instrument is ideal for testing in agriculture and soil analysis labs, swimming pools, fertilizer plants, petroleum refinery, textile plants etc. **Technical Specification :** Display : 3½ Digit LED Measurement : TDS Ranges : 0 to 200 ppm 0 to 2.000 ppt 0 to 20.00 ppt 0 to 200.0 ppt 0 to 1000 ppt Accuracy : ±2% FS ± 1 digit Temperature Compensation : 0 to 50°C (manual) Cell Constant : Adjustable on digital display Measuring Cell : Platinum DIP Type Resolution : 0.1 ppm Power : 230V±10% AC, 50 Hz with TDS Cell, Operation Manual & Dust Cover.As per IS standard & ISI mark.	1	
5	Dust Sampler Aim : determination of particulars in air	Fine Dust Sampler PM 2.5 Size Separator EPA PM 2.5 WINS Impactor PM 10 Size Separator EPA Omni-directional ambient particle inlet with 10µ separation assembly & sample transport tube. Filter Media 47 mm Filter in a Filter Cassette housed in Filter Holder	1	

		assembly. Flow Rate Meter & Volume Totaliser (USEPA Procedure Followed) Flow in LPM on digital display with a Resolution of 0.01 LPM under actual operating conditions. Flow rate maintained at 16.67 LPM ±10% Accuracy ± 2% of reading using a microprocessor based digital flow controller. Volume Totalised every 5 seconds from above flow rate & available on display. Clock / Timer System Programmable Real Time control system with automatic start & stop & digital display of date & time & time of sampling. Accuracy ± 2 min / month. Temperature Sensors For Ambient temperature & Filter temperature Range - 5°C to 50°C with a Resolution of 0.10C. Barometric Press Sensor Range 600 to 800 mm Hg. Resolution 1 mm Hg RS-232 Serial Output For downloading to data storage Module. Vacuum Pump A diaphragm type pump with AC motor. Power 230 V AC ± 10%, 50 Hz. Height of sampling Inlet 2 Meter above ground with stand. conforming to BIS/ISI/ISO standard		

03. GEOTECH ENGINEERING -1 LAB

S. NO.	EQUIPMENT REQUIRED	SPECIFICATION	APPROX. QTY.	QUOTED UNIT PRICE (Rs.)
1	Oven Aim to determine the water content of soil % by oven dry method	OVEN-LAB TYPE STAINLESS STEEL Should of double walled construction inner chamber made of mild steel / St. steel and exterior G.I sheets powder coated. The gap between the two walls filled with glass wool insulation. Temp. Controlled by thermostat. Supplied with G.I. wire mesh shelves. Temp. Range:50°C to 250°C accuracy(+/-2°C) Inner chamber size:- 12X12X12 inches (L x H x W) approx.as per IS 2720-part II conforming to ISI/BIS/ISO standard .	1	

04. GEOTECH ENGINEERING-2 LAB

S. NO.	EQUIPMENT REQUIRED	SPECIFICATION	APPROX. QTY.	QUOTED UNIT PRICE (Rs.)
1	CBR Apparatus Aim : to determine california bearing ratio for the designing of pavements , laboratory determination of CBR test	CALIFORNIA BEARING RATIO APPARATUS (MOTORISED) The equipment should consists of bench mounting type 5000kgf capacity load frame motorized Mould made from mild steel, 150mm internal dia x 175mm high, with perforated base plate and extension collar 50mm high. Penetration Piston, face dia 50mm with adjustable bracket. Circular spacer disc 148mm dia. x 47.7 mm height with detachable handle Annular & Slotted metal weight of 2.5 kg approx., having 147 mm dia. approx. With 53 mm approx. central hole / slot Perforated plate with detachable adjustable stem & lock nut. Metal tripod stand for dial gauge. Rammer 2.6kg & 4.89kg approx. High Sensitivity Proving Ring 10kN capacity with calibration chart. 0.01x25mm dial gauge. The equipment is operated on 220 Volts single phase AC supply. CBR Field Type, with Proving Ring & Dial Gauge.as per IS standard and ISI mark,as per IS 2720 part 16 ,Is9669-1980,IS 9198-1989	1	
2	North Dakota Cone Apparatus Aim: to determine in situ bearing value of subgrade	Complete with set of weights 7 Nos-4.5 kg and One hardened steel cone. ASEW-060 Proving ring Penetrometer complete with high sensitivity proving ring of 100 kg. Cap. fitted with 0.002mm dial gauge with calibration certificate. All complete in a nice wooden case. as per IS standard and ISI mark.Is 2720.	1	

05. TRANSPORTATION ENGINEERING-1 LAB

S. NO.	EQUIPMENT REQUIRED	SPECIFICATION	APPROX. QTY.	QUOTED UNIT PRICE (Rs.)
1	Ring and Ball Apparatus Aim: to determine 10% final value	RING AND BALLAPPARATUS (ELECTRICAL) IS : 1205- 1985, IP : 58/63 The apparatus should used to determine softening point of bitumen. Ring and ball apparatus should used to determine softening point. It is that temperature at which a sample of bituminous material loaded by a 9.5mm dia steel ball drops at a distance of 25mm. Specifications: The apparatus should consists of steel bracket with a sliding plate support. The support has two holes of 10mm dia on which a Ring and Ball guide can be kept. A central hole on this plate is for inserting thermometer. with a glass beaker approximate 8.5cm. I.D., 12cm high and a hand stirrer and 2 nos. 9.5mm dia steel balls thermostatic hot plate. suitable for operation of 230V A.C. . as per ISI/BIS/ISO standard and ISI mark...	1	
2	Los Angles Abrasion Machine	The machine consists of a hallow cylinder mounted horizontally on a sturdy frame on ball bearings. There is an opening which can be closed with a dust tight cover to facilitate charging and discharging the drum with the material under test. A detachable shelf which extends throughout the inside length of the drum which catches the abrassive charge and does not allow it to fall on the cover. The drum is rotated by an electric motor through a heavy reduction gear at a speed of 30-33 r.p.m. A revolution counter is fitted to the frame. A tray is supplied for collection of the material at the end of the test. Complete with abrassive charges consisting of a set of twelve hardened steel balls, approximately 48mm dia. Suitable for operation on 440 volts, 3 phase, 50 cycles, A.C. supply. as per ISI/BSI/ISOstandard and ISI mark..	1	

3	Sieve Shaker	GRYTORY SIEVE SHAKER MOTORIZED Should be accommodate up to 7 sieves of 8"dia and is driven by ½ H.P motor through reduction gear. Every part of the Sieve should be utilized by constant upward and downward movement to workable on 220/230 volts A.C. Fitted with Automatic "German "Timer 0.60 minutes Spare :- Adptor for 300 mm dia. as per IS standard.& ISI mark.	1	

ISSUED TO : **Price Rs. 1000/-**
DATE :

INSTITUTE OF TECHNOLOGY, KORBA (C.G.)

TENDER DOCUMENTS FOR

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No ITK/PUR/2011/ 444 Korba, dated24/3/2011

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The Institute of Technology, Korba run by Institute of Technology Korba Society invites tender from experienced suppliers/publishers/agencies for the Supply of Lab. Equipments/Books for Mechanical Engg., Civil Engg., Electrical & Electronics Engg., Computer Science & Engg., Library with following terms & conditions:-

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Korba(C.G.)

INSTITUTE OF TECHNOLOGY, KORBA (C.G.)

GOVT. POLYTECHNIC CAMPUS, RUMGARA, KORBA-495684

PHONE NO.07759-217435, 094241-44099, FAX NO.07759-228605

E-mail: korbait@rediffmail.com, Website: www.itkorba.com

No ITK/PUR/EQUIP/2011/ 444 Korba, dated 24/3/2011

Last date of selling tender document : 25/4/**2011 at 15.00 hrs.**

Last date of submission of sealed tender document: 26/4/**2011 at 13.00 hrs.**

Date of opening of tender document : 26/4/**2011 at 14.00 hrs.**

CATEGORY : COMPUTER SCIENCE & ENGINEERING

Terms and Conditions

(The tenderer is required to submit soft copy of offer along with hard copy)

Copy of Terms and condition for supply of equipment etc. required for the Institute of Technology, Korba, (Chhattisgarh) applicable to categories 1 to 4

1. The tender is liable to be rejected if not submitted as per the following condition without asking any further clarification.
2. The tender contains Four parts viz. (1) Mechanical Engg. (2) Civil Engg. (3) Electrical and Electronics Engg. (4) Computer Science Engg. and each part of the tender contains two stage bidding: Technical and commercial bids.
3. Separate tender documents should be submitted for technical bidding (only the technical specification) and commercial bidding and the sealed tender should be clearly marked as technical bid and commercial bid on the top of the envelope, for each part of the tender. The envelope should be marked the part number for which it meant.
4. Commercial bids of those tenders, which are found technically suitable, will only be opened and considered for the items technically approved.
5. Commercial bid opening dates will be finalized after opening of technical bids and shall be informed to the technically approved tenderers separately.
6. The tenderer may be asked to give demonstration of the trainer/ equipment /software preferably at Korba.
7. The tender (Technical Bid) will be opened as per the date and time given above in the presence of such tenderers or their representatives who are desirous to be present.
8. Tender received after due date and time will not be entertained.
9. The tender form is non transferable.
10. Tender should be submitted in Duplicate. They should be tagged separately and marked as original and duplicate.
11. Item no. and page no. of the tender form should be strictly in chronological order.
12. Make, name of the manufacturer with complete address should be mentioned against each item and equipment.
13. Printed condition on the back of the tender will not be binding unless separately mentioned. Copies of the terms and condition should be furnished in duplicate.

14. The tenderer must furnish complete and detailed specification supported by printed literature of the equipment offered. Incomplete specifications /absence of printed literature support will result in the rejection of the tender.

15. The rate should be FOR destination including Excise and PFFI. Nothing extra will be paid in such case except the VAT/CST on the cost of the equipment.

16. If rate are quoted ex-go down /ex-factory then Excise duty, and PFFI charge should be clearly indicated for proper rate compatibility/comparability.

17. Taxes, if viable extra, should be clearly indicated failing which the rate quoted in the tender will be considered as inclusive of all taxes.

18. The supplier will have to get the equipment delivered in the institution and then only the payment will be made in rupees.

19. There should be no alterations/corrections made in the quotation. Quotation should always be in figures and words.

20. The tender should clearly indicate whether the equipment is complete in itself. If in the opinion of the tenderer, certain accessories / safety devices are necessary with the type of the equipment tendered, he may quote for them under the **heading Extra but Essential**.

21. As per the order of the state Govt. small scale industries registered with the Industries department of Chhattisgarh Govt. are to be given a price preference of 10% while comparing rate with the other suppliers for equipment produced /manufactured by them. In order to avail this preference the tendered should furnish a certified/Photostat copy of the registration along with the tender.

22. The tenderer is required to deposit 03% of the quoted amount as EMD. The EMD should be deposited, separate for each category, in the form of Demand Draft drawn in favour of Principal Institute of Technology, Korba (Chattisgarh) against tender No ITK/PUR/EQUIP/2011/444 refundable under the order of, Principal, Institute of Technology, Korba (Chhattisgarh). Tender received without EMD will be rejected. Requests for relaxing EMD will not be entertained. EMD by cheque / bank guarantee / Money Order will not be accepted.

23. Demand Draft for the EMD should be submitted along with the technical bid of the tender and a photocopy of the same may be submitted with the commercial bid.

24. In case of non-acceptance of the tender, the EMD will be refunded to the tenderer in course of time. The EMD will be treated as security deposit in case of selected tenders. EMD /Security deposit will be forfeited in case of breech of agreement of supply by the tenderer (supplier).

25. The order shall stand cancelled and security forfeited
    i. if supplier expresses his inability to execute the order for the quoted items within validity period of the tender at the rate quoted in the tender and for makes / brand quoted in the tender.
    ii. If the complete equipment is not supplied within the delivery period mentioned in the order or within the extended period permitted.
    iii. If the supplier executes only part of tender.

26. Any Equipment / Trainers, Hardware or software breakdown must be attended within 48 hours during the warranty period of the equipment/software free of cost.

27. Payments will be released after the successful installation and demonstration at the institution.

28. Extension in the delivery period may be granted at the discretion of the undersigned. The penalty at a rate of 1% per month of the full cost of the equipment is liable to be charged for the extension of the delivery period. Equipment received after the delivery period or dispatched after the delivery period mentioned in the order will also be subjected to this penalty.

29. In case of any default in execution the order, the undersigned reserves the right to forfeit the EMD /Security deposit. The undersigned also reserves the right to cancel the order and forfeit the

EMD/Security deposit in case the tenderer fails to adhere strictly to all terms and condition of the order.

30. If defects of any kind or deviations from the specification are detected and reported to the supplier, the supplier should make replacement or rectify the defects free of cost within 30 days from the date of report, failing which the equipment will not be accepted and will be returned to the supplier at his own cost and risk, and the EMD will be forfeited. In case the equipment is sent for repairs to the firm, it should be repaired with in 30 days, from the date of receipt of equipment failing which the same will not be accepted and EMD will be forfeited. However the undersigned may condone the delay in deserving cases at his discretion.

31. The undersigned reserves the right to increase/decrease the quantity of the equipment to be supplied.

32. The submission of the tender will deemed to be the acceptance of all the terms and condition of the tender as stated herein and/or elsewhere in the tender document.

33. Tenders should be valid for at least six months from the date of opening the commercial bid of the tender. The prices should be firm without variations of any kind.

34. The institution will issue “D” FORM duly complete and signed by the competent authority for reduction in CST at the time of final payment.

35. The undersigned reserves the right to accept the lowest or any tender and also of rejecting all or any tender without assigning any reasons for the same or to split up the tender as he may deem fit.

36. Request for the supply of any details in the respect of quotation or comparative chart or any other enquiry in respect of the tenders received will not be entertained. Exact and earliest possible time of delivery should be indicated in the tender against each item. Other things, being equal, the tenders who give earliest delivery period will be preferred while comparing the rates. The delivery period given in the order will be the date of receipt of the equipment in the institute and not the date of dispatch of the equipment by the supplier.

37. Sealed envelop for the tender should be super scribed as Tender Notice No ITK/PUR/EQUIP/2011/444 along with the category applied for and should be addressed to Principal, Institute of Technology, Korba (Chhattisgarh). S.No. and Name of the Category for which the tender is submitted, should be clearly mentioned

38. Materials / Equipments sent through courier / cargo services will not be accepted unless the presence of any representative from supplier No advance payment, either with the tenderer or agent R/R will be made to any supplier, please note that any other payment terms or such type are not negotiable.

39. Latest Income tax Clearance and CST Clearance certificate from the concerned authority should be attached with the tender. Tender received without this certificate will be rejected.

40. The supplier should have at least three years experience in concerned field. In support of experience the supplier should attach xerox copies of purchase and execution report of supply for the period.

41. The minimum guarantee period for the equipment supplied by the supplier will have to be given which should not be less than one year from the date of installation. Security Deposite/ EMD of order will be returned only after expiry of guarantee period. The tenderer will be required to undertake repair/replacement of defective parts free of cost at the institution.

42. All the disputes with regard to the contract of purchase of equipment etc. will be subjected to Korba jurisdiction only.

43. In the event of the order, supplier who are the manufacturer of the equipment will be required to furnish a certificate to the effect that they are manufacturers of such and such make whereas the authorized agent of stockiest will have to furnish certificate assigned by the manufacturer

certifying that M/S is their authorized agent/stockiest under brand. No equipment without this certificate will be accepted..

44. The equipment /machinery calibrated in metric system need be quoted.

45. The tender shall guarantee that after sales service shall be provided as and when required.

46. The supplier should render necessary assistance, if required, in the installation of the equipment /machinery in the institute free of charge.

47. No offer should be made for imported item for which import license has to be arranged by the undersigned. The entire imported item will have to be delivered in the institute and payment will be made in Rupees only.

48. Other terms and condition will be as per C.G. State government store purchase rule

Principal
Institute of Technology
Korba (C.G.)

ANNEXURE-I

(Proforma for Technical Bid)

The offer should be submitted in the following format only:

S.No.	Name of Item along with Make	Specifications given in the Tenders	Technical Specifications which the bidder wants to supply as for Catalogue/ Brochure (Specification must not be less than given specification)	Deviation	Remarks

NOTE: Attach Catalogue/Brochure in original for above quoted Items. The quoted items should conform to BIS standards.

ANNEXURE-II

(Proforma for Commercial Bid)

The offer should be submitted in the following format only:

S.No.	Name of Item along with Make	Specifications given in the Tenders	Technical Specifications which the bidder wants to supply as for Catalogue/ Brochure (Specification must not be less than given specification)	Price of Equipment	Cost of equipment Inclusive of Taxes & all charges	Remarks

NOTE: Attach Catalogue/Brochure in original for above quoted Items. The quoted items should conform to BIS standards.

ANNEXURE-III

ACKNOWLEDGEMENT

This is to acknowledge the receipt of your Demand Draft/ IPO No. ……..... Dated …… For Rs. ……..

Principal
Institute of Technology
Korba

(To be signed and returned along with the tender)

I/We (Full Name) ……..……...

Address ……. …….. have read the tender rules for the supply of various stores as per tender notice to the Principal, Institute of Technology, Korba (C.G.) and I/We fully accept the bidding rules supplied to me/us with the bidding documents.

Date: ……. Signature: (Name & Full Address of the Firm)

ANNEXURE-IV

TENDER FORM FOR SUPPLY OF LAB EQUIPMENTS/ SOFTWARE

The tender form dully filled and accompanied by necessary documents in a sealed cover addressed to Principal, Institute Technology, Korba Vill: Rumgara P.O. Balco Nagar, Korba (C.G.) should reach by 13:00on or before 26/ 04 /2011.

Requisite Information

1. Name of the Applicant/Firm:
2. Address: (Attach documentary proof)
3. Constitution of the Applicant: Manufacturer /Authorized Dealer /Company/Proprietor/Partner
4. Telephone Nos. & Email:
5. Turnover for the last three years: (Attach documentary proof)
6. List of regular clients with the: name of contact person and telephone No.
7. Permanent Account No. (PAN): (Attach photocopy)
8. Traders Identification No. (TIN),: if any(Attach photocopy)
9. Registration No. Under CST, if any: (Attach photocopies)
10. BIS/ISI/ISO Membership No., if any(Attach photocopy)
11. Details of certified banker's: cheque /demand draft for Bid Security Deposit (EMD)
12. Percentage of discount offered: (To be mentioned in figure & words)

Signature: ……(Authorized signatory)

Name: ……

Designation: …….

Stamp of Applicant

Lab Name:- Digital Electronics & Logic Building

Items Detail

S.No.	Item Name	Specification	Qty.	Price
1.	Digital Trainer Kit	·**Indicators** - 10 TTL/CMOS Logic Level Inputs with Dual Color LED indication for logic low and logic high - 10 LED for output indication. ·**Clock Generator** - Fixed Clock generation of 1Hz, 10Hz, 100Hz, 1KHz, 10KHz, 100KHz & 1MHz. ·**Pulse Generator** - Logic Pulsar provides single pole double throw bounce less pulses of Low to High and High to Low transitions ·**Logic Probe** - Logic Probe facility provided with LED indicators to indicate Logic High, Low & Tri-state ·**Bread Board Area**- Two Distribution Strip of 100 tie points each totaling 200 tie points - One Terminal Strip of 630 tie points ·**Display**- Three digit seven-segment LED display. ·**Sockets on board** - 14 Pin Socket- 8Nos. - 16 Pin Socket- 3Nos. - 20 Pin Socket- 1No. ·One IC each of 7400, 7402, 7408, 7432, 7404, 7490, 7495, 7486, 7447 & Two Nos. of IC 7476. ·**Power Supplies** - Fixed DC Power Supply: +5V, ±12V. ·**Interconnections** - All interconnections are made using 2mm banana Patch cords.	10	

		·All ICS are mounted on IC Sockets. ·Bare board Tested Glass Epoxy SMOBC PCB is used. ·Attractive Wooden enclosures of Light weight Australian Pine Wood. ·Set of 2mm Patch cords for interconnections ·User's Manual with sample experimental programs		

Lab Name: Artificial Intelligence & Expert Systems Lab

Sem: VII

Branch: CSE

Sr.No	Item	Qty	Price
1	Visual Prolog Compiler (Academic version)	33	

Note: Further clarification if required can be obtained from the department

Lab Name: Software Technology Lab-5

Sem: VIII

Branch: CSE

Sr.No	Item	Qty	Price
1	ASP.Net (Academic version)	33	

Note: Further clarification if required can be obtained from the department

Lab Name: database Management Systems Lab

Sem: V

Branch: CSE

Sr.No	Item	Qty	Price
1	Oracle (Academic version)	33	

Note: Further clarification if required can be obtained from the department

Lab Name: Software Technology Lab-5

Sem: V

Branch: CSE

Sr.No	Item	Qty	Price
1	Java (Academic version)	33	

Note: Further clarification if required can be obtained from the department

Lab Name: Software Technology Lab-4

Sem: V

Branch: CSE

Sr.No	Item	Qty	Price
1	Microsoft Visual Studio.Net (Academic version)	33	

Note: Further clarification if required can be obtained from the department

Lab Name: Computer Network Lab

Sem: VI

Branch: CSE

Sr.No	Item	Qty	Price
1	Windows 2008 Server	33(Network Lenience)	
2	Lan Trainer Kit	15	
3	RJ-45 Connectors	300	
4	HUB/SWITCH	4	
5	Crimping Tools	5	
6	LAN Tester	2	

Note: Further clarification if required can be obtained from the department

ISSUED TO : **Price Rs. 1000/-**
DATE :

INSTITUTE OF TECHNOLOGY, KORBA (C.G.)

TENDER DOCUMENTS FOR

SUPPLY OF LAB EQUIPMENT FOR ELECTRICAL & ELECTRONICS ENGINEERING DEPARTMENT

BID SECURITY (EMD): 3% Of Quoted Amt.

Last date of selling tender document :	25/4/2011 at 15.00 hrs.
Last date of submission of tender document :	26/4/2011 at 13.00 hrs.
Date of opening of tender document :	26/4/2011 at 14.00 hrs.

ADDRESS FOR COMMUNICATION

PRINCIPAL,
INSTITUTE OF TECHNOLOGY, KORBA (C.G.)
GOVT. POLYTECHNIC CAMPUS, RUMGARA, KORBA-495684
PHONE NO.07759-217435, 094241-44099, FAX NO.07759-228605
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E-mail: korbait@rediffmail.com, Website: www.itkorba.com

No ITK/PUR/2011/ 444 Korba, dated24/3/2011

NOTICE INVITING TENDER

The Institute of Technology, Korba run by Institute of Technology Korba Society invites tender from experienced suppliers/publishers/agencies for the Supply of Lab. Equipments/Books for Mechanical Engg., Civil Engg., Electrical & Electronics Engg., Computer Science & Engg., Library with following terms & conditions:-

01. Tender document can be obtained by the prospective tenderer on payment of Rs.1000/-(Rs. One Thousand only) in cash or through demand draft in favour of "Principal Institute of Technology, Korba (C.G.)" payable at Korba From 25/3 / 2011 to 25/4/ 2011 during working hours or can be downloaded from our website *www.itkorba.com*. The additional DD of Rs.1000/-(Rs. One thousand only) as tender document fee must be submitted with downloaded tender document.

02. Tender must be delivered to I.T.Korba through Registered post or speed post or couriers or by hand on or before 13.00 hours on 26/4 /2011 and will be opened on the same day at 14.00 hours in the presence of the tenderer who wishes to attend/purchase committee of I.T.Korba.

03. Other details/terms & conditions can be seen on tender document. Separate tender forms should be purchased and submitted for each branch (Category).

04. The Undersigned has the right to reject any or all tenders without assigning any reason.

05. The tender docuement must be submitted in sealed envelope. At the top of the envelope tender **bid.no. & date** should be mentioned.

Principal
Institute of Technology
Korba(C.G.)

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Last date of selling tender document : 25/4/**2011 at 15.00 hrs.**

Last date of submission of sealed tender document: 26/4/**2011 at 13.00 hrs.**

Date of opening of tender document : 26/4/**2011 at 14.00 hrs.**

CATEGORY : ELECTRICAL & ELECTRONICS ENGINEERING

Terms and Conditions

(The tenderer is required to submit soft copy of offer along with hard copy)

Copy of Terms and condition for supply of equipment etc. required for the Institute of Technology, Korba, (Chhattisgarh) applicable to categories 1 to 4

1. The tender is liable to be rejected if not submitted as per the following condition without asking any further clarification.
2. The tender contains Four parts viz. (1) Mechanical Engg. (2) Civil Engg. (3) Electrical and Electronics Engg. (4) Computer Science Engg. and each part of the tender contains two stage bidding: Technical and commercial bids.
3. Separate tender documents should be submitted for technical bidding (only the technical specification) and commercial bidding and the sealed tender should be clearly marked as technical bid and commercial bid on the top of the envelope, for each part of the tender. The envelope should be marked the part number for which it meant.
4. Commercial bids of those tenders, which are found technically suitable, will only be opened and considered for the items technically approved.
5. Commercial bid opening dates will be finalized after opening of technical bids and shall be informed to the technically approved tenderers separately.
6. The tenderer may be asked to give demonstration of the trainer/ equipment /software preferably at Korba.
7. The tender (Technical Bid) will be opened as per the date and time given above in the presence of such tenderers or their representatives who are desirous to be present.
8. Tender received after due date and time will not be entertained.
9. The tender form is non transferable.
10. Tender should be submitted in Duplicate. They should be tagged separately and marked as original and duplicate.
11. Item no. and page no. of the tender form should be strictly in chronological order.
12. Make, name of the manufacturer with complete address should be mentioned against each item and equipment.
13. Printed condition on the back of the tender will not be binding unless separately mentioned. Copies of the terms and condition should be furnished in duplicate.

14. The tenderer must furnish complete and detailed specification supported by printed literature of the equipment offered. Incomplete specifications /absence of printed literature support will result in the rejection of the tender.

15. The rate should be FOR destination including Excise and PFFI. Nothing extra will be paid in such case except the VAT/CST on the cost of the equipment.

16. If rate are quoted ex-go down /ex-factory then Excise duty, and PFFI charge should be clearly indicated for proper rate compatibility/comparability.

17. Taxes, if viable extra, should be clearly indicated failing which the rate quoted in the tender will be considered as inclusive of all taxes.

18. The supplier will have to get the equipment delivered in the institution and then only the payment will be made in rupees.

19. There should be no alterations/corrections made in the quotation. Quotation should always be in figures and words.

20. The tender should clearly indicate whether the equipment is complete in itself. If in the opinion of the tenderer, certain accessories / safety devices are necessary with the type of the equipment tendered, he may quote for them under the **heading Extra but Essential**.

21. As per the order of the state Govt. small scale industries registered with the Industries department of Chhattisgarh Govt. are to be given a price preference of 10% while comparing rate with the other suppliers for equipment produced /manufactured by them. In order to avail this preference the tendered should furnish a certified/Photostat copy of the registration along with the tender.

22. The tenderer is required to deposit 03% of the quoted amount as EMD. The EMD should be deposited, separate for each category, in the form of Demand Draft drawn in favour of Principal Institute of Technology, Korba (Chattisgarh) against tender No ITK/PUR/EQUIP/2011/444 refundable under the order of, Principal, Institute of Technology, Korba (Chhattisgarh). Tender received without EMD will be rejected. Requests for relaxing EMD will not be entertained. EMD by cheque / bank guarantee / Money Order will not be accepted.

23. Demand Draft for the EMD should be submitted along with the technical bid of the tender and a photocopy of the same may be submitted with the commercial bid.

24. In case of non-acceptance of the tender, the EMD will be refunded to the tenderer in course of time. The EMD will be treated as security deposit in case of selected tenders. EMD /Security deposit will be forfeited in case of breech of agreement of supply by the tenderer (supplier).

25. The order shall stand cancelled and security forfeited
    i. if supplier expresses his inability to execute the order for the quoted items within validity period of the tender at the rate quoted in the tender and for makes / brand quoted in the tender.
    ii. If the complete equipment is not supplied within the delivery period mentioned in the order or within the extended period permitted.
    iii. If the supplier executes only part of tender.

26. Any Equipment / Trainers, Hardware or software breakdown must be attended within 48 hours during the warranty period of the equipment/software free of cost.

27. Payments will be released after the successful installation and demonstration at the institution.

28. Extension in the delivery period may be granted at the discretion of the undersigned. The penalty at a rate of 1% per month of the full cost of the equipment is liable to be charged for the extension of the delivery period. Equipment received after the delivery period or dispatched after the delivery period mentioned in the order will also be subjected to this penalty.

29. In case of any default in execution the order, the undersigned reserves the right to forfeit the EMD /Security deposit. The undersigned also reserves the right to cancel the order and forfeit the

EMD/Security deposit in case the tenderer fails to adhere strictly to all terms and condition of the order.

30. If defects of any kind or deviations from the specification are detected and reported to the supplier, the supplier should make replacement or rectify the defects free of cost within 30 days from the date of report, failing which the equipment will not be accepted and will be returned to the supplier at his own cost and risk, and the EMD will be forfeited. In case the equipment is sent for repairs to the firm, it should be repaired with in 30 days, from the date of receipt of equipment failing which the same will not be accepted and EMD will be forfeited. However the undersigned may condone the delay in deserving cases at his discretion.

31. The undersigned reserves the right to increase/decrease the quantity of the equipment to be supplied.

32. The submission of the tender will deemed to be the acceptance of all the terms and condition of the tender as stated herein and/or elsewhere in the tender document.

33. Tenders should be valid for at least six months from the date of opening the commercial bid of the tender. The prices should be firm without variations of any kind.

34. The institution will issue “D” FORM duly complete and signed by the competent authority for reduction in CST at the time of final payment.

35. The undersigned reserves the right to accept the lowest or any tender and also of rejecting all or any tender without assigning any reasons for the same or to split up the tender as he may deem fit.

36. Request for the supply of any details in the respect of quotation or comparative chart or any other enquiry in respect of the tenders received will not be entertained. Exact and earliest possible time of delivery should be indicated in the tender against each item. Other things, being equal, the tenders who give earliest delivery period will be preferred while comparing the rates. The delivery period given in the order will be the date of receipt of the equipment in the institute and not the date of dispatch of the equipment by the supplier.

37. Sealed envelop for the tender should be super scribed as Tender Notice No ITK/PUR/EQUIP/2011/444 along with the category applied for and should be addressed to Principal, Institute of Technology, Korba (Chhattisgarh). S.No. and Name of the Category for which the tender is submitted, should be clearly mentioned

38. Materials / Equipments sent through courier / cargo services will not be accepted unless the presence of any representative from supplier No advance payment, either with the tenderer or agent R/R will be made to any supplier, please note that any other payment terms or such type are not negotiable.

39. Latest Income tax Clearance and CST Clearance certificate from the concerned authority should be attached with the tender. Tender received without this certificate will be rejected.

40. The supplier should have at least three years experience in concerned field. In support of experience the supplier should attach xerox copies of purchase and execution report of supply for the period.

41. The minimum guarantee period for the equipment supplied by the supplier will have to be given which should not be less than one year from the date of installation. Security Deposite/ EMD of order will be returned only after expiry of guarantee period. The tenderer will be required to undertake repair/replacement of defective parts free of cost at the institution.

42. All the disputes with regard to the contract of purchase of equipment etc. will be subjected to Korba jurisdiction only.

43. In the event of the order, supplier who are the manufacturer of the equipment will be required to furnish a certificate to the effect that they are manufacturers of such and such make whereas the authorized agent of stockiest will have to furnish certificate assigned by the manufacturer

certifying that M/S is their authorized agent/stockiest under brand. No equipment without this certificate will be accepted..

44. The equipment /machinery calibrated in metric system need be quoted.

45. The tender shall guarantee that after sales service shall be provided as and when required.

46. The supplier should render necessary assistance, if required, in the installation of the equipment /machinery in the institute free of charge.

47. No offer should be made for imported item for which import license has to be arranged by the undersigned. The entire imported item will have to be delivered in the institute and payment will be made in Rupees only.

48. Other terms and condition will be as per C.G. State government store purchase rule

Principal
Institute of Technology
Korba (C.G.)

ANNEXURE-I

(Proforma for Technical Bid)

The offer should be submitted in the following format only:

S.No.	Name of Item along with Make	Specifications given in the Tenders	Technical Specifications which the bidder wants to supply as for Catalogue/ Brochure (Specification must not be less than given specification)	Deviation	Remarks

NOTE: Attach Catalogue/Brochure in original for above quoted Items. The quoted items should conform to BIS standards.

ANNEXURE-II

(Proforma for Commercial Bid)

The offer should be submitted in the following format only:

S.No.	Name of Item along with Make	Specifications given in the Tenders	Technical Specifications which the bidder wants to supply as for Catalogue/ Brochure (Specification must not be less than given specification)	Price of Equipment	Cost of equipment Inclusive of Taxes & all charges	Remarks

NOTE: Attach Catalogue/Brochure in original for above quoted Items. The quoted items should conform to BIS standards.

ANNEXURE-III

ACKNOWLEDGEMENT

This is to acknowledge the receipt of your Demand Draft/ IPO No. ……..... Dated …… For Rs. ……..

Principal
Institute of Technology
Korba

(To be signed and returned along with the tender)

I/We (Full Name) ……..……...

Address ……. …….. have read the tender rules for the supply of various stores as per tender notice to the Principal, Institute of Technology, Korba (C.G.) and I/We fully accept the bidding rules supplied to me/us with the bidding documents.

Date: ……. Signature: (Name & Full Address of the Firm)

ANNEXURE-IV

TENDER FORM FOR SUPPLY OF LAB EQUIPMENTS/ SOFTWARE

The tender form dully filled and accompanied by necessary documents in a sealed cover addressed to Principal, Institute Technology, Korba Vill: Rumgara P.O. Balco Nagar, Korba (C.G.) should reach by 13:00on or before 26/ 04 /2011.

Requisite Information

1. Name of the Applicant/Firm:
2. Address: (Attach documentary proof)
3. Constitution of the Applicant: Manufacturer /Authorized Dealer /Company/Proprietor/Partner
4. Telephone Nos. & Email:
5. Turnover for the last three years: (Attach documentary proof)
6. List of regular clients with the: name of contact person and telephone No.
7. Permanent Account No. (PAN): (Attach photocopy)
8. Traders Identification No. (TIN),: if any(Attach photocopy)
9. Registration No. Under CST, if any: (Attach photocopies)
10. BIS/ISI/ISO Membership No., if any(Attach photocopy)
11. Details of certified banker's: cheque /demand draft for Bid Security Deposit (EMD)
12. Percentage of discount offered: (To be mentioned in figure & words)

Signature: ……(Authorized signatory)

Name: ……

Designation: …….

Stamp of Applicant

INSTITUTE OF TECHNOLOGY, KORBA

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

LIST OF REQUIRED LAB EQUIPMENTS/MATERIALS FOR BE (EEE) III Yr

1 Name of Lab **Microprocessor & Interfaces Lab**

S.No.	NAME OF EQUIPMENT	TECHNICAL SPECIFICATIONS	APPROX QUANTITY	QUOTED UNIT PRICE (RS.)
1	8085 based microprocessor kit	8085 based microprocessor trainer should have necessary peripherals IC's / circuitry, multi functional 28 keys keyboard & 6 digit seven segment display, interfacing and expansion facilities, should be capable for wide use for training to develop software / hardware for any industrial process control. The unit should be housed in an elegant cabinet with a well spread intelligently designed layout on front panel. It should be supplied along with comprehensive instruction manual complete with operating details and sample programmes. The CPU should be HIGH PERFORMANCE 8085 CPU @ 6.144 MHZ MONITOR EPROM : 8K bytes of EPROM loaded with powerful monitor program like one pass line assembler. RAM : 8K bytes of user's RAM with battery backup expandable upto 64K. BATTERY BACKUP : 3.6V Ni-Cd battery for user RAM. TIMER : 16 bit programmable timer / counter using 8253 KEYBOARD : 28 keys keyboard I/O LINES : 24 I/O lines using 8255 DISPLAY : 6 Digit Seven Segment Displays (4 for address field& 2 for data field) OPERATION MODES : Hex Keypad mode and serial mode. BUS : All data, address and control signals (TTL compatible) available at 50 pin FRC connector SERIAL INTERFACE : RS-232C serial Interface Through SID/SOD line IN-BUILT POWER SUPPLY : +5V/1A & +12V/250mA POWER REQUIREMENT : 230V AC, 50 Hertz, Single Phase	10	

2 Name of Lab **Industrial & Power Electronics Lab**

S.No.	NAME OF EQUIPMENT	TECHNICAL SPECIFICATIONS	APPROX QUANTITY	QUOTED UNIT PRICE (RS.)
1	THREE PHASE INDUCTION MOTOR	THREE PHASE INDUCTION MOTOR :This trainer is designed to drive the three phase AC induction motor using SCR based V/F controller. (open / closed loop). SCR based three phase converter and inverter forms V / F controller. Variable voltage achieved by controlling the firing angle of SCR converter. Variable frequency achieved by controlling the firing pulse frequency of SCR Mc-Murray inverter.	1	

3 Name of Lab Advanced Microprocessor & Interfacing Lab

S.No.	NAME OF EQUIPMENT	TECHNICAL SPECIFICATIONS	APPROX QUANTITY	QUOTED UNIT PRICE (RS.)
1	8086 Microprocessor kit	8086 Microprocessor kit:- FEATURES: # Operates with 8086 CPU on a +5V power supply, in stand-alone mode using on-board keypad or with a computer compatible system through RS-232 interface # Powerful system monitor permits entry of programs, debugging through breakpoint and instruction step facilities # Provision for easy system expansion through system bus connectors # HEX files generated using computer native tools like MASM, TASM can be downloaded to a processor # Provision for battery backup to RAM # Windows driver with user friendly debugging environment. # Reliable SMD design SPECIFICATIONS CPU 8086 CPU operating at 8MHz in Max. Mode MEMORY # EPROM : 4 JEDEC sockets provide 128Kbytes using 27256 (32K x 4) or 256Kbytes using 27512 (64K x 4) System firmware is supplied in 2 x 2725 The other two sockets are for user # RAM : 4 JEDEC sockets provide 128Kbytes using 62256 (32K x 4), 64Kbytes using 2 X 62256 The other two sockets are for user PERIPHERALS: # 8079 : To control 32 keys keypad and 8-digit, half inch size, seven segment LED display # 8288 : Bus controller used for generating control signals # 8284 : Clock generator used to generate clock for Processor and associated peripherals # 8251A : Programmable communication interface for serial communication supporting standard bauds from110 to 19,200 # 8259A: Programmable Interrupt Controller provides interrupt vectors for 8 sources # 8253-2 : Three programmable interval Timers; Timer0 is Used for generating Baud clock and the rest are available for user # 8255A : (2 Nos.) Programmable Peripheral Interface devices provide 48 Programmable I/O lines INTERRUPTS # External : NMI through keyboard INTR controlled through 8259A, On-board Interrupt Controller provides interrupt vectors for eight interrupt source; off-board or on- board Interrupt vector 1 (single step) and three breakpoint reserved for monitor INTERFACE SIGNALS # CPU Bus : De-multiplexed and fully buffered. TTL compatible, Address, Data & Control Signals are available on two 50 pin ribbon cable connector # Parallel I/O : 48 programmable parallel I/O lines (TTL compatible) through two 26 pin ribbon cable connectors # Serial I/O : RS-232 through on-board 9 pin D-type female connector # Timer Signals : Timer1 and Timer2 signals are brought out to header pins Power supply : +5V DC @ 1300mA RS-232 Cable,Driver software CD for Windows,User manual	5	
2	8255 PROGRAMMABLE PERIPHERAL INTERFACE STUDY CARD 8253 PROGRAMMABLE TIMER COUNTER STUDY CARD 8251 USART STUDY CARD 8257 DIRECT MEMORY ACCESS STUDY CARD 8259 PROGRAMMABLE INTERRUPT CONTROLLER STUDY CARD 8279 PKDC STUDY CARD	8255 PROGRAMMABLE PERIPHERAL INTERFACE STUDY CARD 8253 PROGRAMMABLE TIMER COUNTER STUDY CARD 8251 USART STUDY CARD 8257 DIRECT MEMORY ACCESS STUDY CARD 8259 PROGRAMMABLE INTERRUPT CONTROLLER STUDY CARD 8279 PKDC STUDY CARD	1	

4 Name of Lab Automatic Control System Lab

S.No.	NAME OF EQUIPMENT	TECHNICAL SPECIFICATIONS	APPROX QUANTITY	QUOTED UNIT PRICE (RS.)
1	AC Servomotor trainer Kit(Experimental Kit with all the accessories)	2-phAC Servo Motor (Speed Torque) should demonstrator versatile & useful, self contained modular training system for finding the Speed - Torque Characteristics of an AC Servo Motor. It consists of two modules, viz., => Control & Display Module / Unit => AC Servo Motor with Loading arrangement Module / Unit => Completely self - contained stand - alone training system => Demonstrates the principle & working of an AC servomotor => Determine the speed torque characteristics of an AC servomotor => Specially designed two phase AC servo - motor with required power supplies 100w,1500rpm => Speed control of AC servo - motor by changing the control winding voltage (variable in steps of 5,10,15 & 20 V AC of 900phase shifted - inbuilt) => Reference winding voltage 230 V => A Rope Brake Pulley Loading Arrangement is provided for Loading of the AC Servo Motor. The arrangement consists of a pulley connected to the shaft of the AC Servomotor, spring balance and the rope coupled across the pulley => A Non - contact type tachometer arrangement using an Opto Coupler is provided along with a Microcontroller based Digital RPM meter for accurate RPM measurement of the AC Servomotor '=> Completely self contained stand alone unit => Demonstrates the principle and working of Time Response of I, II, III Order System => Study of effects of Time Response of II Order System => Inbuilt selectable control for Time => Facilities for plotting of responses : 1. Magnitude Response 2. Phase Angle Response => Built - in IC based DC regulated power supply with short circuit protection and indication for supply "ON" => Multi - coloured test points are provided at various stages to observe the voltage and waveform => Housed in an elegant cabinet with a well spread intelligently designed multicoloured layout on the front panel => Set of necessary patch cords => Supply required 230V, 50Hz AC	1	
2	Stepper Motor trainer kit(Experimental Kit with all the accessories)	Stepper Motor Demonstration unit should be versatile self contained stand alone unit useful in the study and demonstration of the principle and working of a stepper motor with various electronic controls such as manual switching and Microprocessor based controls. Provision for direct up interface is provided. It consists of two units viz. Stepper motor unit and the translator unit. Each unit is housed in an elegant cabinet with a well spread intelligently designed circuit layout on the front panel. Multicoloured test points are provided by a comprehensive instruction manual complete with theory, operating and machine code program. Technical Specifications Stepper motor unit: Motor : Bi-directional with permanent magnet rotor & bifilar wound stator Motor characteristics Self starting, low moment of inertia, instantaneous start, stop and reversal of rotation Rotation : 200 steps/revolution Torque : 3.5 KGcm^2 Stepping angle : 1.8 Deg. Operating voltage 12V DC Mounting : Motor mounted in metal cabinet with a calibrated dial and pointer. Connector : Special connector with wires to connect motor unit to transistor unit. Panel size : 8" x 10" Translator unit: Translator : Versatile solid state electronic switching circuit for conversion of input pulses. Output : Required pulse pattern for driving the stepper motor using digital circuitry analog demultiplexer & power amplifier. Type of control : 1. Number of steps. 2. Speed of revolution 3. Direction of rotation. DC Source : Translator : + 12V DC Regulated. Motor : + 15V DC Unregulated. Pulser : Bounceless manual pulser. Clock generator : Variable clock frequency generator with high/low and fine control. Controls : 1. Mains ON/OFF. 2. Manual Pulser. 3. Forward / Reverse rotation switch	1	
3	BODE PLOT TRAINER KIT(.(Experimental Kit with all the accessories)	BODE PLOT TRAINER KIT should be completely self contained stand - alone unit and it should be designed for educational & experimenting purposes for demonstration the principle and working of various control systems (Type 0, Type 1 & Type 2) for bode plot characteristics , study of frequency response, gain calculation, transfer function, logarithmic plot consisting of two graphs viz, logarithmic of magnitude and phase angle (combined plots are called as Bode plot) for various control systems (Type 0,1, 2) □ Built - in IC based DC regulated power supply with short circuit protection and indication for supply "ON". It shoud have multi - coloured test points at various stages to observe the voltage and waveform through patch cords. It should be housed in an elegant cabinet with a well spread intelligently designed multicoloured layout on the front panel an dshoyuld be supplied with comprehensive instruction manual complete with theory and operating details. The supply voltage should be 230V AC	1	

1.All the Kits /panel should be completely self defined stand alone unit with short circuit protection & regulated power supply.
2.They should perform the above listed experiments.
3.All the instruments/kits should designed for standard educational & experimenting purposes.
4.All the Kits should demonstrate the principle & working of various control systems.
5.Vendor should provide 2 sets of winded instruction manual with the m/c & the set perform the above listed experiments.
6.If a single unit can perform more then one experiment(specify with the kit/instrument no. & name of experiment can perform).
7. In relation to above point(no. 6) specify all the required accessories to perform the experiment.

5 Name of Lab **Rotating Electrical Machines Lab**

S.No.	NAME OF EQUIPMENT	TECHNICAL SPECIFICATIONS	APPROX QUANTITY	QUOTED UNIT PRICE (RS.)
1	Three phase Squirrel Cage Induction motor Trainer Kit	Set up for Speed control of Induction motor * 1HP AC Squirrel cage Induction motor 3phase 415V AC, Delta connected 1440RPM, TEFC, IP44, IC01, B3, Casting body Class-B, Single shaft extension, * Control Panel MS Fabricated, powder coated, Table top type consisting of AC VVVF Drive suitable for speed control of AC Motor from 0 to 1440rpm with potentiometer, Indicating meters a/m(5amp), v/m(500v), lamps provided Banana terminals for making connections. Wattmeter provided (1No) with Experiment Manual AC Induction motor with Brake Drum arrangement * 1HP AC Squirrel cage Induction motor 3phase 415V AC, Delta connected 1440RPM, TEFC, IP44, IC01, B3, Casting body Class-B, Single shaft extension, 3 Terminals brought out, as per IS 325 * Mounted on MS Channel base with Mechanical Brake drum arrangement consisting of Water cooled pulley, belt, 2 Round dials, Wheel & screw arrangement. * Control Panel MS Fabricated, powder coated, Table top type consisting of DOL Starter for ac motor with Indicating meters a/m, v/m, lamps provided, MCB Banana terminals for making connections. Wattmeter provided (1No) with Experiment Manual.	1	
2	Three Phase Alternator coupled with DC Shunt Motor kit	Setup for- O.C & S.C Test on Alternators & Obtain Voltage Regulation by EMF & MMF method MG SET WITH CONTROL PANEL & LOAD BANK * 5HP DC Shunt motor 230V DC, 1500rpm, SPDP, IP23, IC01, Class-B * Coupled with flexible coupling & mounted on MS base with * 3KVA Alternator Output 415V AC Seperate excitation voltage 230V DC 1500rpm, SPDP, IP23, IC01, B3, Class-B, Single shaft extension as per IS 4722. * Control panel MS Fabricated, powder coated, Table top type consisting of DC 3Point starter with A/m ,V/m, Lamps, Banana terminals Field rheostat for DC Motor. DC Variable exciter for DC Generator suitable for providing variable 0-230V DC for generator excitation with V/m, A/m, V/m, A/m for Generator output voltage. Input to panel 230V DC & 230V AC.	1	
3	3-Phase, Δ-Y Transformer	Setup for- Synchronization of Alternator with Bus bar with lamp method MG SET WITH CONTROL PANEL & LOAD BANK * 5HP DC Shunt motor 230V DC, 1500rpm, SPDP, IP23, IC01, Class-B * Coupled with flexible coupling & mounted on MS base with * 5KVA, Alternator Output 415V AC Seperate excitation voltage 230V DC 1500rpm, SPDP, IP23, IC01, B3, Class-B, Single shaft extension as per IS 4722. * Control panel MS Fabricated, powder coated, Table top type consisting of DC 3Point starter with A/m ,V/m, Lamps, Banana terminals Field rheostat for DC Motor. DC Variable exciter for DC Generator suitable for providing variable 0-230V DC for generator excitation with V/m, A/m, V/m, A/m for Generator output voltage. Input to panel 230V DC & 230V AC. * Switches & Lamps for synchronizing	1	
4	3 Phase Auto Transformers:	Setup for- Determine D & Q Axis synchronous reactance by Slip test MG SET WITH CONTROL PANEL & LOAD BANK * 5HP DC Shunt motor 230V DC, 1500rpm, SPDP, IP23, IC01, Class-B * Coupled with flexible coupling & mounted on MS base with * 3KVA Synchronous Alternator Output 415V AC Seperate excitation voltage 230V DC 1500rpm, SPDP, IP23, IC01, B3, Class-B, Single shaft extension as per IS 4722. * Control panel MS Fabricated, powder coated, Table top type consisting of DC 3Point starter with A/m ,V/m, Lamps, Banana terminals Field rheostat for DC Motor. V/m, A/m across the Synchronous armature terminals V/m ,A/m across the Synchronous field terminals Input to panel 230V DC & 230V AC. * 3Phase Variac	1	
5	Single Phase Capacitor start Induction Motor coupled to Mechanical Load	1phase Capacitor start and run Induction Motor 2HP 220Volts, 1440 rpm directly coupled to mechanical Load with belt and pulley spring balance arrangement with the drum dimension of 200 to 250 mm water cooled alluminium type, having 6" round dial type spring balances. Machine should confirm to relevant specifications of BIS.	1	
6	Single Phase Universal Motor with mechanical Load	1phase Universal Motor 1HP 220Volts, 5000 rpm directly coupled to mechanical Load with belt and pulley spring balance arrangement, with the drum dimension of 200 to 250 mm water cooled alluminium type having 6" round dial type spring balances. Machine should confirm to relevant specifications of BIS	1	

1. All the m/c should be mounted on powderd coated MS base frame with shock and anti vibration mounts and with suitable mounting holes on a test bed.
2.M/C should comply with relevant IS standards.
3.There should be provisison of single earthing point in case of single phase m/c & double earthing in case of 3 phase m/c
4.All the instruments should be designed for standard educational & experimental purposes,they should demonstrate the principle & working of it.
5.All the trainer kits are completely self defined stand alone unit with all the required measuring meters ,MCB, control panel,overload protection
6. All the kits should have overload protection & all the staring accessories
7.Vendor should provide 2 sets of winded instruction manual with the m/c & the set perform the above listed experiments.
8 Specify all the required accessories to perform above liated equipments.
9 It wil be preferred if selector switch for both AC/DC provided with regulated power supply.

INSTITUTE OF TECHNOLOGY, KORBA (C.G.)

GOVT. POLYTECHNIC CAMPUS, RUMGARA, KORBA-495684

PHONE NO.07759-217435, 094241-44099, FAX NO.07759-228605

E-mail: korbait@rediffmail.com, Website: www.itkorba.com

No ITK/PUR/LIB/2011/ 444 Korba, dated 24/3/2011

Last date of selling tender document : 25/4/**2011 at 15.00 hrs.**

Last date of submission of sealed tender document: 26/4/**2011 at 13.00 hrs.**

Date of opening of tender document : 26/4/**2011 at 14.00 hrs.**

CATEGORY : LIBRARY

Terms and Conditions

Tender for Supply of Books to Library for the year 2010-11
Terms and Conditions

1. The Principal, I.T., Korba proposes to purchase books as per list enclosed (Appendix-I), for its library at maximum offered rate of discount. If tender documents are downloaded a D. D of Rs. 1000/- (Rs. One thousand only) in favour of "Principal, Institute of Technology, Korba" payable at Korba must be submitted in E.M.D. envelope. E.M.D. and document for discount should be kept in separate sealed envelopes super scribed with tender bid number and date.
2. The selected parties interested in supplying of books may send their application in prescribed form along with the proof of their turnover for the last three years; mentioning that they possess necessary capacity and facilities for supply of technical books as per requirement.
3. The selected party offering most competitive rates of discount will be required to supply the latest edition of technical books to Library. In no case the earlier edition be supplied unless it is specifically asked for. In case it is noticed, even at later stage, that the latest edition has not been supplied, the supplier will have to refund the cost of books to The Principal, I.T. Korba and take the book(s) back at his own cost.
4. The Principal, I.T.Korba intends to procure latest technical books only and the books published after the year 2010 onward shall be supplied unless and until any book published before 2010 is specifically asked for supply.
5. The party will be required to agree for supply of all technical books and must quote their discount for all technical books. Quotation of rates / acceptance for supply of books partially will not be acceptable. The decision of The Principal, I.T. Korba shall be final and binding.
6. The party will ensure to supply only hard bound edition of the books, wherever available. The paperback edition may only be supplied, if hardbound edition has not been published.
7. The price proof for all the books, except for the books with printed price, must be enclosed along with the bill in support of prices charged.
8. The title and other details of supplied books must be in accordance with supply order and the book(s) should be in good condition. The Principal, I.T. Korba will not be responsible for any loss or damage in postal transit or transportation. In case of erroneous supply and discrepancies in book(s), the book(s) shall be returned at the suppliers cost, even after stamping etc. If any shortcomings are noticed in the supplied books at any point of time, the same will be returned for the replacement. The final option to return the book(s) or ask for refund towards difference in price will rest with The Principal, I.T., Korba and will be binding on the party.
9. The prices charged will be inclusive of all the taxes, freight and packaging charges and **F.O.R. Korba.** In no case additional charge will be paid. The books must be supplied through

Registered Post or by any other mode at suppliers cost. The mailing address for supply of books is as under:

The Principal,
Institute of Technology, Korba
Vill.-Rumgara, P.O. Balco Nagar,
Korba (C.G.) Pin: 495684

10. The party will be required to submit the proof regarding their membership to All India Association of Publishers and Distributors. Also the **PAN, TIN and CST** (if any) firm should be mentioned in **tender** document.
11. The institution will issue "D" FORM duly complete and signed by the competent authority for reduction in CST at the time of final payment.
12. All our orders will be valid for 30 days only, provided that acceptance indicating the supply of books reaches us within 15 days from the date of issue of orders, failing which, stand cancelled. The supply period may be extended up to two months provided genuine documentary proof in support of action taken is submitted to The Principal, I.T. Korba mutually agreed upon.
13. The following certificates must be recorded either on body or verso of the bill:
    (A) No cheaper edition other than supplied is available, so far.
    (B) The book(s) supplied is / are of latest edition and not remainder title(s).
    (C) Prices charged are correct as per latest publisher's catalogue and the difference in price, if any, will be refunded at any time.
14. The tenderer is required to deposit Rs. 30,000/-(Rs.Thirty Thousand Only) as bid security / EMD. The EMD should be deposited, in the form of Demand Draft drawn in favour of Principal Institute of Technology, Korba (Chattisgarh) against tender No ITK/PUR/LIB/2011/----- refundable under the order of, Principal, Institute of Technology, Korba (Chhattisgarh). Tender received without EMD will be rejected. Requests for relaxing EMD will not be entertained. EMD by cheque / bank guarantee / Money Order will not be accepted
15. The offer made by the party will be valid for 1 Year and may be extended further as per mutual consent. **The EMD amount of the party is liable to be forfeited, if the concerned party fails to supply less than 75% of the ordered books, without providing genuine reasons OR it withdraws/backs out its offer/commitment. Consequently, the concerned party will be blacklisted by IT, Korba.**
16. In case of same discount offered by two or more agencies/suppliers, the supply order will go to those who mentioned earliest time in their term & conditions.
17. There will not be any sort of advance payment for supply of technical books.
18. The Principal, IT, Korba, reserves the full rights to accept or reject the **tender** in full or in part with out assigning any reason.
19. For conversion of prices of books in foreign currencies, the Reserve Bank of India conversion rates applicable on the date of billing will be taken into account. The party will be required to submit the proof of conversion rate.
20. All disputes are subject to **Korba Jurisdiction** only.

Principal,
Institute of Technology,
Korba

ANNEXURE-I

Proforma for discount

S.No.	Description (Name Publishers)	Address	% Discount in Figure	% Discount in word
1.	Wely Eastern, New Delhi	New Delhi		
2.	Jain Brothers, Delhi	Delhi		
3.	EWP Press, Delhi	Delhi		
4.	MGH, Delhi (Mc Graw Hill)	Delhi		
5.	CBS, Delhi (Central Book Society)	Delhi		
6.	TMH (Tata McGraw Hill), B-4, Sector-63, Noida	Noida		
7.	English Long Book, Delhi	Delhi		
8.	PHI (Prentice Hall of India)	Delhi		
9.	Dhanpat Rai & Co., Delhi	Delhi		
10.	EWE New Delhi	Delhi		
11.	Oxford & IBH, Delhi	Delhi		
12.	Khanna Publication	New Delhi		
13.	Laxmi Publication, 113, Golden House, Dariyaganj New Delhi	New Delhi		
14.	SBH (Standard Book House)	New Delhi		
15.	S Chand, Nagpur	Nagpur		
16.	Charotar Publication, Opp-Amul Dairy Ervil Court Road, Anand	Anand Gujrat		
17.	Kataria & Sons	New Delhi		
18.	Narosa Publication House	New Delhi		
19.	Shiksha Sahitya Publication	New Delhi		
20.	W.E. Ltd (Widely Eastern Ltd.)	New Delhi		
21.	Jaco Publication Bombay	Bombay		
22.	Edition Velly Delhi	Delhi		

23.	New Age Int. Delhi	Delhi		
24.	Pearson Education	New Delhi		
25.	Vikas Publication	New Delhi		
26.	Pune Vidyarthi Griha Publication	New Delhi		
27.	Standard Publication	New Delhi		
28.	World Press Publication	New Delhi		
29.	Mahindra Capital Publication	New Delhi		
30.	Nem Chand Publication	New Delhi		
31.	Chapman & Hall Publication	New Delhi		
32.	Balekig & Sons Pvt. Ltd.	New Delhi		
33.	Longman & Scientific Technical U.K.	U.K.		
34.	Allice Book Stall & Engg. Book Publication	New Delhi		
35.	Umesh Publication	New Delhi		
36.	THI	New Delhi		
37.	B.P. Kothari Delhi	Delhi		
38.	V.P.P. B	New Delhi		
39.	Galgotia Publication Delhi	Delhi		
40.	John Wiley Sons	New Delhi		
41.	Shoums Outline Delhi	Delhi		
42.	English long book Science	U.K.		
43.	Oxford & IBH	U.K.		
44.	Edition Velly	U.K.		
45.	World Press publication.	U.K.		
46.	Balckic & Sons Pvt. Ltd.	U.K.		
47.	Longman Scientific Technical U.K.	U.K.		
48.	Allics Book Stall & Engineering Book Publishing Co.	U.K.		
49.	Katson/Technical	Delhi		
50.	Widey Eastern Ltd.	U.K.		

Principal
Institute of Technology,
Korba (C.G.)

ANNEXURE-II

TENDER FORM FOR SUPPLY OF TECHNICAL BOOKS

The tender form dully filled and accompanied by necessary documents in a sealed cover addressed to Principal, Institute Technology, Korba Vill: Rumgara P.O. Balco Nagar, Korba (C.G.) should reach by 13:00on or before 26/04/2011.

Requisite Information

1. Name of the Applicant/Firm:
2. Address: (Attach documentary proof)
3. Constitution of the Applicant: Proprietor/Partnership/Company
4. Telephone Nos. & Email:
5. Turnover for the last three years: (Attach documentary proof)
6. List of regular clients with the: name of contact person and telephone No.
7. Permanent Account No. (PAN): (Attach photocopy)
8. Traders Identification No. (TIN),: if any(Attach photocopy)
9. Registration No. Under CST, if any: (Attach photocopies)
10. All India Association of Publishers: and Distributors Membership No., if any(Attach photocopy)
11. Details of certified banker's: cheque /demand draft for Bid Security Deposit (EMD)
12. Percentage of discount offered: (To be mentioned in figure & words)

Signature: ……(Authorized signatory)

Name: ……

Designation: …….

Stamp of Applicant

ANNEXURE-III

ACKNOWLEDGEMENT

This is to acknowledge the receipt of your Demand Draft/ IPO No. ……..... Dated ……
For Rs. …….....…..

Principal
Institute of Technology
Korba

(To be signed and returned along with the tender)

I/We (Full Name) ……..……... Address ……. …….. have read the tender rules for the supply of various Books as per tender notice to the Principal, Institute of Technology, Korba (C.G.) and I/We fully accept the bidding rules supplied to me/us with the bidding documents.

Date: ……. Signature: (Name & Full Address of the Firm)

ISSUED TO : **Price Rs. 1000/-**
DATE :

INSTITUTE OF TECHNOLOGY, KORBA (C.G.)

TENDER DOCUMENTS FOR

SUPPLY OF LAB EQUIPMENT FOR MECHANICAL ENGINEERING DEPARTMENT

BID SECURITY (EMD): 3% Of Quoted Amt.

Last date of selling tender document :	25/4/2011 at 15.00 hrs.
Last date of submission of tender document :	26/4/2011 at 13.00 hrs.
Date of opening of tender document :	26/4/2011 at 14.00 hrs.

ADDRESS FOR COMMUNICATION

PRINCIPAL,
INSTITUTE OF TECHNOLOGY, KORBA (C.G.)
GOVT. POLYTECHNIC CAMPUS, RUMGARA, KORBA-495684
PHONE NO.07759-217435, 094241-44099, FAX NO.07759-228605
E-mail: korbait@rediffmail.com, Website: www.itkorba.com

INSTITUTE OF TECHNOLOGY, KORBA (C.G.)

GOVT. POLYTECHNIC CAMPUS, RUMGARA, KORBA-495684

PHONE NO.07759-217435, 094241-44099, FAX NO.07759-228605

E-mail: korbait@rediffmail.com, Website: www.itkorba.com

No ITK/PUR/2011/ 444 Korba, dated24/3/2011

NOTICE INVITING TENDER

The Institute of Technology, Korba run by Institute of Technology Korba Society invites tender from experienced suppliers/publishers/agencies for the Supply of Lab. Equipments/Books for Mechanical Engg., Civil Engg., Electrical & Electronics Engg., Computer Science & Engg., Library with following terms & conditions:-

01. Tender document can be obtained by the prospective tenderer on payment of Rs.1000/-(Rs. One Thousand only) in cash or through demand draft in favour of "Principal Institute of Technology, Korba (C.G.)" payable at Korba From 25/3 / 2011 to 25/4/ 2011 during working hours or can be downloaded from our website *www.itkorba.com*. The additional DD of Rs.1000/-(Rs. One thousand only) as tender document fee must be submitted with downloaded tender document.

02. Tender must be delivered to I.T.Korba through Registered post or speed post or couriers or by hand on or before 13.00 hours on 26/4 /2011 and will be opened on the same day at 14.00 hours in the presence of the tenderer who wishes to attend/purchase committee of I.T.Korba.

03. Other details/terms & conditions can be seen on tender document. Separate tender forms should be purchased and submitted for each branch (Category).

04. The Undersigned has the right to reject any or all tenders without assigning any reason.

05. The tender docuement must be submitted in sealed envelope. At the top of the envelope tender **bid.no. & date** should be mentioned.

Principal
Institute of Technology
Korba(C.G.)

INSTITUTE OF TECHNOLOGY, KORBA (C.G.)

GOVT. POLYTECHNIC CAMPUS, RUMGARA, KORBA-495684

PHONE NO.07759-217435, 094241-44099, FAX NO.07759-228605

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No ITK/PUR/EQUIP/2011/ 444 Korba, dated 24/3/2011

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Date of opening of tender document : 26/4/**2011 at 14.00 hrs.**

CATEGORY : MECHANICAL ENGINEERING

Terms and Conditions

(The tenderer is required to submit soft copy of offer along with hard copy)

Copy of Terms and condition for supply of equipment etc. required for the Institute of Technology, Korba, (Chhattisgarh) applicable to categories 1 to 4

1. The tender is liable to be rejected if not submitted as per the following condition without asking any further clarification.
2. The tender contains Four parts viz. (1) Mechanical Engg. (2) Civil Engg. (3) Electrical and Electronics Engg. (4) Computer Science Engg. and each part of the tender contains two stage bidding: Technical and commercial bids.
3. Separate tender documents should be submitted for technical bidding (only the technical specification) and commercial bidding and the sealed tender should be clearly marked as technical bid and commercial bid on the top of the envelope, for each part of the tender. The envelope should be marked the part number for which it meant.
4. Commercial bids of those tenders, which are found technically suitable, will only be opened and considered for the items technically approved.
5. Commercial bid opening dates will be finalized after opening of technical bids and shall be informed to the technically approved tenderers separately.
6. The tenderer may be asked to give demonstration of the trainer/ equipment /software preferably at Korba.
7. The tender (Technical Bid) will be opened as per the date and time given above in the presence of such tenderers or their representatives who are desirous to be present.
8. Tender received after due date and time will not be entertained.
9. The tender form is non transferable.
10. Tender should be submitted in Duplicate. They should be tagged separately and marked as original and duplicate.
11. Item no. and page no. of the tender form should be strictly in chronological order.
12. Make, name of the manufacturer with complete address should be mentioned against each item and equipment.
13. Printed condition on the back of the tender will not be binding unless separately mentioned. Copies of the terms and condition should be furnished in duplicate.

14. The tenderer must furnish complete and detailed specification supported by printed literature of the equipment offered. Incomplete specifications /absence of printed literature support will result in the rejection of the tender.

15. The rate should be FOR destination including Excise and PFFI. Nothing extra will be paid in such case except the VAT/CST on the cost of the equipment.

16. If rate are quoted ex-go down /ex-factory then Excise duty, and PFFI charge should be clearly indicated for proper rate compatibility/comparability.

17. Taxes, if viable extra, should be clearly indicated failing which the rate quoted in the tender will be considered as inclusive of all taxes.

18. The supplier will have to get the equipment delivered in the institution and then only the payment will be made in rupees.

19. There should be no alterations/corrections made in the quotation. Quotation should always be in figures and words.

20. The tender should clearly indicate whether the equipment is complete in itself. If in the opinion of the tenderer, certain accessories / safety devices are necessary with the type of the equipment tendered, he may quote for them under the **heading Extra but Essential**.

21. As per the order of the state Govt. small scale industries registered with the Industries department of Chhattisgarh Govt. are to be given a price preference of 10% while comparing rate with the other suppliers for equipment produced /manufactured by them. In order to avail this preference the tendered should furnish a certified/Photostat copy of the registration along with the tender.

22. The tenderer is required to deposit 03% of the quoted amount as EMD. The EMD should be deposited, separate for each category, in the form of Demand Draft drawn in favour of Principal Institute of Technology, Korba (Chattisgarh) against tender No ITK/PUR/EQUIP/2011/444 refundable under the order of, Principal, Institute of Technology, Korba (Chhattisgarh). Tender received without EMD will be rejected. Requests for relaxing EMD will not be entertained. EMD by cheque / bank guarantee / Money Order will not be accepted.

23. Demand Draft for the EMD should be submitted along with the technical bid of the tender and a photocopy of the same may be submitted with the commercial bid.

24. In case of non-acceptance of the tender, the EMD will be refunded to the tenderer in course of time. The EMD will be treated as security deposit in case of selected tenders. EMD /Security deposit will be forfeited in case of breech of agreement of supply by the tenderer (supplier).

25. The order shall stand cancelled and security forfeited
    i. if supplier expresses his inability to execute the order for the quoted items within validity period of the tender at the rate quoted in the tender and for makes / brand quoted in the tender.
    ii. If the complete equipment is not supplied within the delivery period mentioned in the order or within the extended period permitted.
    iii. If the supplier executes only part of tender.

26. Any Equipment / Trainers, Hardware or software breakdown must be attended within 48 hours during the warranty period of the equipment/software free of cost.

27. Payments will be released after the successful installation and demonstration at the institution.

28. Extension in the delivery period may be granted at the discretion of the undersigned. The penalty at a rate of 1% per month of the full cost of the equipment is liable to be charged for the extension of the delivery period. Equipment received after the delivery period or dispatched after the delivery period mentioned in the order will also be subjected to this penalty.

29. In case of any default in execution the order, the undersigned reserves the right to forfeit the EMD /Security deposit. The undersigned also reserves the right to cancel the order and forfeit the

EMD/Security deposit in case the tenderer fails to adhere strictly to all terms and condition of the order.

30. If defects of any kind or deviations from the specification are detected and reported to the supplier, the supplier should make replacement or rectify the defects free of cost within 30 days from the date of report, failing which the equipment will not be accepted and will be returned to the supplier at his own cost and risk, and the EMD will be forfeited. In case the equipment is sent for repairs to the firm, it should be repaired with in 30 days, from the date of receipt of equipment failing which the same will not be accepted and EMD will be forfeited. However the undersigned may condone the delay in deserving cases at his discretion.

31. The undersigned reserves the right to increase/decrease the quantity of the equipment to be supplied.

32. The submission of the tender will deemed to be the acceptance of all the terms and condition of the tender as stated herein and/or elsewhere in the tender document.

33. Tenders should be valid for at least six months from the date of opening the commercial bid of the tender. The prices should be firm without variations of any kind.

34. The institution will issue “D” FORM duly complete and signed by the competent authority for reduction in CST at the time of final payment.

35. The undersigned reserves the right to accept the lowest or any tender and also of rejecting all or any tender without assigning any reasons for the same or to split up the tender as he may deem fit.

36. Request for the supply of any details in the respect of quotation or comparative chart or any other enquiry in respect of the tenders received will not be entertained. Exact and earliest possible time of delivery should be indicated in the tender against each item. Other things, being equal, the tenders who give earliest delivery period will be preferred while comparing the rates. The delivery period given in the order will be the date of receipt of the equipment in the institute and not the date of dispatch of the equipment by the supplier.

37. Sealed envelop for the tender should be super scribed as Tender Notice No ITK/PUR/EQUIP/2011/444 along with the category applied for and should be addressed to Principal, Institute of Technology, Korba (Chhattisgarh). S.No. and Name of the Category for which the tender is submitted, should be clearly mentioned

38. Materials / Equipments sent through courier / cargo services will not be accepted unless the presence of any representative from supplier No advance payment, either with the tenderer or agent R/R will be made to any supplier, please note that any other payment terms or such type are not negotiable.

39. Latest Income tax Clearance and CST Clearance certificate from the concerned authority should be attached with the tender. Tender received without this certificate will be rejected.

40. The supplier should have at least three years experience in concerned field. In support of experience the supplier should attach xerox copies of purchase and execution report of supply for the period.

41. The minimum guarantee period for the equipment supplied by the supplier will have to be given which should not be less than one year from the date of installation. Security Deposite/ EMD of order will be returned only after expiry of guarantee period. The tenderer will be required to undertake repair/replacement of defective parts free of cost at the institution.

42. All the disputes with regard to the contract of purchase of equipment etc. will be subjected to Korba jurisdiction only.

43. In the event of the order, supplier who are the manufacturer of the equipment will be required to furnish a certificate to the effect that they are manufacturers of such and such make whereas the authorized agent of stockiest will have to furnish certificate assigned by the manufacturer

certifying that M/S is their authorized agent/stockiest under brand. No equipment without this certificate will be accepted..

44. The equipment /machinery calibrated in metric system need be quoted.

45. The tender shall guarantee that after sales service shall be provided as and when required.

46. The supplier should render necessary assistance, if required, in the installation of the equipment /machinery in the institute free of charge.

47. No offer should be made for imported item for which import license has to be arranged by the undersigned. The entire imported item will have to be delivered in the institute and payment will be made in Rupees only.

48. Other terms and condition will be as per C.G. State government store purchase rule

Principal
Institute of Technology
Korba (C.G.)

ANNEXURE-I

(Proforma for Technical Bid)

The offer should be submitted in the following format only:

S.No.	Name of Item along with Make	Specifications given in the Tenders	Technical Specifications which the bidder wants to supply as for Catalogue/ Brochure (Specification must not be less than given specification)	Deviation	Remarks

NOTE: Attach Catalogue/Brochure in original for above quoted Items. The quoted items should conform to BIS standards.

ANNEXURE-II

(Proforma for Commercial Bid)

The offer should be submitted in the following format only:

S.No.	Name of Item along with Make	Specifications given in the Tenders	Technical Specifications which the bidder wants to supply as for Catalogue/ Brochure (Specification must not be less than given specification)	Price of Equipment	Cost of equipment Inclusive of Taxes & all charges	Remarks

NOTE: Attach Catalogue/Brochure in original for above quoted Items. The quoted items should conform to BIS standards.

ANNEXURE-III

ACKNOWLEDGEMENT

This is to acknowledge the receipt of your Demand Draft/ IPO No. ……..... Dated …… For Rs. ……..

Principal
Institute of Technology
Korba

(To be signed and returned along with the tender)

I/We (Full Name) ……..……...

Address ……. …….. have read the tender rules for the supply of various stores as per tender notice to the Principal, Institute of Technology, Korba (C.G.) and I/We fully accept the bidding rules supplied to me/us with the bidding documents.

Date: ……. Signature: (Name & Full Address of the Firm)

ANNEXURE-IV

TENDER FORM FOR SUPPLY OF LAB EQUIPMENTS/ SOFTWARE

The tender form dully filled and accompanied by necessary documents in a sealed cover addressed to Principal, Institute Technology, Korba Vill: Rumgara P.O. Balco Nagar, Korba (C.G.) should reach by 13:00on or before 26/ 04 /2011.

Requisite Information

1. Name of the Applicant/Firm:
2. Address: (Attach documentary proof)
3. Constitution of the Applicant: Manufacturer /Authorized Dealer /Company/Proprietor/Partner
4. Telephone Nos. & Email:
5. Turnover for the last three years: (Attach documentary proof)
6. List of regular clients with the: name of contact person and telephone No.
7. Permanent Account No. (PAN): (Attach photocopy)
8. Traders Identification No. (TIN),: if any(Attach photocopy)
9. Registration No. Under CST, if any: (Attach photocopies)
10. BIS/ISI/ISO Membership No., if any(Attach photocopy)
11. Details of certified banker's: cheque /demand draft for Bid Security Deposit (EMD)
12. Percentage of discount offered: (To be mentioned in figure & words)

Signature: ……(Authorized signatory)

Name: ……

Designation: …….

Stamp of Applicant

INTITUTE OF TECHNOLOGY, KORBA
MECHANICAL ENGINEERING

1 Dynamics of Machines Lab

S. No.	Name of Equipment	Technical Specification	Approx. Qty.	Quoted Unit Prices (Rs.)
1	Universal Vibration Apparatus	Frame and Cupboard Nett dimensions and weight: 1120 mm x 960 mm x 1830 mm and 280 kg Cupboard: Hinged doors and shelf. Total size approximately: 355 mm x 700 mm x 1060 mm. Tools including: Metric allen keys (hexagon tools),Metric spanners . Ancillaries Including: A stopwatch and a rule. Electrical supply : Single-phase, 230 V/110 V, 50/60 Hz Storage temperature range: –25°C to +55°C Operating temperature range: +5°C to +40°C Operating relative humidity range:80% at temperatures < 31°C decreasing linearly to 40 degree. Sound Levels (all products):Less than 70 dB(A) Conforming to ISI/BIS/ISO specification With all accessories, safety devices (if any required) and user manual. To perfom the followings experiments: 1.Find out the oscillations of simple pendulum 2.Find out the oscillations of Compound pendulum. 3.Find out the radius of gyration of bi-filler suspension. 4.Find out undamped torsional vibrations of single rotor system. 5.Find out the frequency of damped torsional vibration of single rotor system. 6. To measure the frequency of torsional vibrations of single rotor system. 7.To measure the frequency of torsional vibrations of double rotor system. 8.To find out free vibration of helical coiled spring. 9.Study forced damped vibration of a spring mass system and simple supported beam.	1	
2	Gyroscope apparatus	The motorized gyroscope consists of a disc rotor mounted on a horizontal shaft rotating in the ball bearing of one frame. The rotor shaft is coupled to a mounted on a trunion frame having bearings in a yoke frame which is free to rotate about vertical axis. Thus the Disc can be rotated about three perpendicular axes. Angular scale and pointer fitted to frame helps to measure precession rate. The system components are for :- Demonstration of relationship between applied and precession rate along with direction of rotation. Gyroscope couple easily varied by weights. Useful verify the relationship- Specification:- o Discrotor-30 cm.0, 10 mm thick, approx. o Drive – FHP, AC/DC single phase motor. o Dimmer stat-4 Amp. o Weight set. Range of Experiment- 1. Observation of gyroscope behave (two laws of stability) 2. Experiment: To find out the Gyroscopic couple and prove the Gyroscopic law with Gyroscope apparatus.	1	

3	Governor apparatus with differential attachments	The unit should design for study various governors. The normally used to control the speed. The units consist of a main spindle driven by variable speed motor mounted on a base plate. The spindle is driven by bell & pulley system.The optional governor out of four governor assemblies can be mounted on spindle. The spindle sped can be controlled by speed control unit provided. A graduated scale is provided to measure the displacement of sleeve.The center sleeve of portal and proell governor incorporates a weight sleeve to which weight may be added. The hartnell governor provides means of varing spring compression level. This enables the hartnell governor, to be operated as a stable or unstable governor. The governor speed is increased in steps to give suitable sleeve movements possible. The speeds and sleeve displacement are recorded. The result may plotted as as curves of speed against sleeve displacements. Further tests are carried out by changing variables. SPECIFICATION:- □ Drive unit –D.C motor ¼ HP, 1500 RPM. □ Speed control unit working on 130 V A C supply with -200 V D C output. □ Belt and pulley system to give springs and weight for following governors. Governor mechanism with springs and weights for following governors-Watt governor, Porter governor, Hartnell governor, Proell governor Range of Experiment:- 1. for all types of governors- (a).Determination of characteristic curve of sleeve position Against speed of spindle. (b).Derivation of actual controlling force from the above and Comparison with theoretically predicated force curve. 2. Portor and proell Governor- The effect of varying mass sleeve. 3. Hartnell Governor- The effect of varying initial spring compression Experiment: □ For all types of Governors (a) Determination of characteristic curve of sleeve position against speed of spindle. (b) Derivation of actual controlling force curves from the above and comparison with theoretically predicted force curve.□ Porter and Proell Governor, The effect of varying mass of sleeve, □ Hartnell Governor .The effect of varying initial spring compression. Experiment: to find out the Power and effort of Proel, Porter & Hartnell Governor.	1	
4	Whirling Of Shaft Apparatus	The apparatus should consist of a base upon which bearing holders and drive motor can be mounted. Different bearings can be fitted in bearing block to have different end condition as both end fixed, one free, One end fixed etc. a variable speed motor is provided to drive the motor along with speed control unit. The unit is useful to demonstrate the phenomenon of whirling of shafts with single rotor. As this test is destructive, after the test shaft can not be used again, hence this unit only demonstrates the principle. SPECIFICATION:- Test shaft-3.17 mm, 4.75mm and 6.35 mm dia 1mt long approx. a. Bearing to provide following end conditions. 1. Both end fixed. 2. One end fixed one end free. b. Drive motor-1/6 HP, 6000 RPM. c. Speed controller unit. Experiment: to find out the critical speed for different diameters of shaft	1	
5	Balancing Apparatus (Both Static & Dynamic)	Appratus should perform experiment: □ Static balancing of system using steel balls. □ Dynamic balancing of a simple rotating mass system. □ Observation of effect of unbalance in a rotating mass system. The apparatus should consist of a steel shaft fixed in na rectangular frame. A set of four blocks with a clamping arrangement is provided. For static balancing, each block is individually clamped on shaft and its relative weight is found out using cord and container system in terms of number of steel balls. For dynamic balancing, a moment polygon is drawn using relative weight and angular and axial positions of blocks are determined. The blocks are clamped is rotated by a motor to check dynamic balance so the system.The system is provided with angular and longitudinal scales and is suspended with chains for dynamic balancing. Specification:- □ Drive motor-FHP universal motor □ Balancing weights-4 no.s with different size eccentric for varying in a mass system.An instrument manual will be supplied along with equipment. Experiment: to verify the static and dynamic balancing for different planes	1	

2 Internal Combustion Engines Lab

S. NO.	Name of Experiment	Technical Specification	Approx. Qty.	Quoted Unit Price (Rs.)
1	Modelof four stroke petrol engine and four stroke diesel engine-For Study of working of four stroke petrol engine and four stroke diesel engine with the help of cut section models.	ISO Certified: FOUR STROKE PETROL ENGINE –CUT SECTION SPECIFICATION :- • Cut sectional 4 stroke 4 cylinder petrol engine mounted on sturdy stand with caster wheel. • The cutting should enable the stationary & working part visible i.e. connecting rod, Piston, valve & springs, Ignition coil, oil filter, timing gear/chain, distributor, radiator, silencer, air cleaner & all other essential parts , etc. • Suitable Electric Motor drive with gear reduction is provided to understand working of engine. • Cut section of Head to see the closing & opening of inlet & outlet valves. • Internal components such as Rocker arm, push rod, inlet valve & outlet valves should be chrome plated. • Cooling system in sectional radiator, water pump, elbow. • Lubricating System in sectional oil pump, oil filter, oil chamber. • Ignition system in sectional Distributor, ignition coil. • Fuel Supply system in sectional carburetor, feed pump, air cleaner, intake manifold. • Exhaust system in sectional exhaust manifold & silencer. • Electrical system in sectional starter & alternator. • Some parts of engine should be colors for better understanding. • The engine should be cut in such a way to demonstrate bellow stated parts movable & stationary parts. 1) Cylinder head, 2) Engine block, 3) Piston, Piston rings & Connecting rod, 4) Rocker shaft assembly, 5) Crank Shaft, 6) Timing gear / chain, 7) Fly wheel, 8) Valves (Operation & Timing), 9) Radiator, 10) Cooling Fan, 11) Tappet Cover, 12) Deep Stick, 13) Camshaft & Tapet. • Manual should be provided. • Whole assembly should be mounted on suitable stand FOUR STROKE DIESEL ENGINE –CUT SECTION SPECIFICATION :- • Four stroke four cylinder diesel engine mounted on stand. The cutting should enable the moving parts visible i.e. connecting rod, piston, valve & spring, pump, crankshaft, Timing gear /chain & all other essential parts etc. • Internal components such as timing gears/chain, Rocker arm, push rod, inlet valve & outlet valves. Some parts should be chrome plated. • Cooling system in sectional radiator, water pump, elbow, water jackets. • Lubricating System in sectional oil pump, oil filter, oil chamber. • Fuel Supply system in sectional Fuel injection pump, injector (only two injector cut), air cleaner, intake manifold. • Exhaust system in sectional exhaust manifold, silencer. • Electrical system in sectional starter & Alternator. • Show bellow stated parts movable & stationary. 1) Cylinder head, 2) Engine block, 3) Piston, Rings and connecting rod, 4) Rocker Shaft assembly, 5) Crank shaft, 6) Timing gear / chain, 7) Fly wheel, 8) Valves, 9) Cam shaft, Tepet & push rod, 10) oil pump & all other essential parts • Suitable Electric motor drive with reduction gear to be provided to under stand moving parts of engine. • Necessary parts of engine should be attractive colors and number for better understanding. • Whole assembly should be mounted on suitable stand. • Manual should be provided..	1	
2	Modelof two stroke petrol engine and ftwo stroke diesel engine-For Study of working of two stroke petrol and two stroke diesel engine with the help of cut section models.	ISO Certified: TWO STROKE PETROL ENGINE –CUT SECTION SPECIFICATION :- • A two stroke single cylinder petrol engine should be cut to show internal detail as piston, connecting rod, crank shaft, inlet port, transfer port & Exhaust port, gearbox, brake & all other essential parts etc. • The cut section should be colored properly ,numbered& the model should be hand and kick drive for its working operational movement. • The Engine should be cut in such a way to demonstrate to bellow stated movable & stationary parts, • Piston • Connecting rod • Crank Shaft • Cylinder block & head • Silencer • Carburetors • Gear box • Clutch unit. • Internal component such some gear should be chrome plated. • Some parts of engine should be colors. • The cut section should on suitable stand. • Manual should be provided	1	
3	Model of Petrol Injection System.-For Study of Petrol Injection System.	ISO certified actual working model	1	

4	Diesel Injectors In Cut Section / Bosch Fuel Pump In Cut Section-For Study of fuel supply system of a Diesel engine (fuel pump and fuel injector)	ISO Certified: DIESEL INECTOR IN CUT SECTION MODEL SPECIFICATION :- • Cut Section model of injector showing arrangement of Nozzle, spring, and shim & spindal & all other essential parts. • Cut section should be mounted on wooden plate with printed diagram. • The whole assembly should be covered with a plastic cover. • Manual should be provided BOSCH FUEL INJECTION PUMP IN CUT SECTION SPECIFICATION :- Fuel Pump (Inline type) • Cut section model showing arrangement of Plunger Element, Cam Shaft, Delivery valve, Delivery seat, Barrel, Spring, Rack & Quarding, Feed pump, Roller Tappets & Governor. & all other essential parts. • Cut section should be mounted on wooden plate, in which all parts should be displayed. • The whole assembly should be supported with a suitable stand, • A separate handle provided for manual operation for demonstration. • Manual should be provided.	1	
5	Model-For Study of Ignition systems of an IC Engine (Battery and Magneto ignition system) and Electronic ignition system.	ISO Certified: Battery and Magneto ignition system and Electronic ignition system.• Manual should be provided. &clearly showing with number all essential parts	1	
6	Model-ForStudy of Lubrication system of an IC Engine (mist, splash and pressure lubrication)	ISO Certified: mist, splash and pressure lubrication.• Manual should be provided. &clearly showing all other essential parts.	1	
7	Model-ForStudy of cooling systems of an IC Engine (air cooling and water cooling)	ISO Certified: Cooling systems of an IC Engine, air cooling and water cooling.• Manual should be provided. & clearl showing all essential parts	1	
8	Variable Compression Ratio Engine Test Rig-To conduct a performance test on the variable compression ratio engine and to draw the heat balance sheet forgiven compression ratio, speed and load and plo the performance curves.	ISO Certified: Variable Compression Ratio Engine Test Rig with mechanical loading Technical specification 01. Engine with auxiliary head (a) 4 Hp/1500-3000RPM/single cylinder /four stroke/ Vertical /air cooled /petrol engine (b) Compression Ratio:- 3:1 to9:1 (Variable with screw rod method) 02. Loading arrangement : Eddy Current Dynamometer 03. Loading measurement : Digital readings for current and voltage and power factor.. 04. Fuel measurement : fuel sensor with digital fuel indicator. 05: air flow measurement : Differential pressure sensor with digital Air flow indicator 06. Water flow measurement : Differential pressure sensor with digital Water flow indictor 07. Temperature measurement: thermocouple and RTD with digital Temperature indicators 08. Speed measurement : Optical tachometer (digital) & all other essential parts must be suppied• User Manual, Operation manual, Experiment Manual, separate diagrams for each parts must be provided	1	

9	Four Stroke Multi-Cylinder Petrol Engine Test Rig-To conduct a performance test on a four cylinder four stroke petrol engine and to draw the heat balance sheet and performance curves.	ISO Certified: Equipment should instrumented for following Experiment □ BHP Measurement □ IHP Measurement (By More Test) □ Fuel Consumption Measurement □ Air Intake Measurement□ Measurement of Heat Rejected to Water Jacket □ Heat Balance Test Evaluate the Followings □ Performance (BHP MEASURMENT) From No Load to Full Load □ Performance at Various Throttle Position □ Heat Balance Sheet □ Morse Test Description: Two Main Components of the Test Rig Welded Steel Base Plate with & all other essential parts Electrical Dynamometer, Drive Shaft with Safety Guard, Engine Staring Battery of 12v, Capacit and Cooling water arrangement control with ignition Switch for Engine Starting Manual Throttle Control, Manual Control Dynamometer Loading Panel Board Positioned over the Base Plate Consisting of Fuel System with Flow Measurement by Burette Air Flow Measurement System, Temperature Indicator etc Engine: Four Cylinder Four Stroke (Maruti Swift/ Hyundai Santro) Water Cooled Petrol Engine. Instrumentation □ Engine Oil Pressure Gauge □ Ammeter □ U Tube Manometer for Air Flow Rate □ Burette for Fuel Flow Rate □ Stop Watch □ Optical Tachometer (Digital) □ Digital Temperature Indicator –Multi Point with Thermocouple □ Digital Volt Meter .Ammeter.• Engine protection system such as triping on over heating/ low lube oil pressure etc. must be provided. all other essential parts must be suppied• User Manual, Operation manual, Experiment Manual, separate diagrams for each parts must be provided	1	
10	Experimental setup for drawing valve timing diagram of Four stroke S.I. or C.I. engines-To draw the valve timing diagram of a Four stroke S.I. or C.I. Engine using experimental setup.	ISO CERTIFIED Experimental setup for Valve timing diagram of Four stroke S.I. or C.I. engines.• Manual should be provided. & all other essential parts	1	
11	Orsat apparatus / gas analyzer for engine exhaust gas analysis-For Analysis of engine exhaust gases using Orsat apparatus / gas analyzer.	ISO Certified: Should analyze 5 Gas analyzer Principal operation: Non Dispersive Infra Red (NDIR) O2 and NOX - Electro Chemical Server Gas Measured Carbon Monoxide CO Carbon Dioxide CO2 Hydrocarbon HC Oxygen O2 AFR (Lambda) λ Nitrogen Oxide (NOX) Optional Range CO 0……15% Vol CO2 0……..20% Vol. HC 0…….30000 PPM (Hexane) 0…….60000 PPM (Propane) NOx 0…….5000 PPM O2 0…….25% Vol Resolution CO 0.001% CO2 0.01% HC 1 PPM NOx 1PPM	1	

3. Energy Conversion System Lab

S. NO.	Name of Equipment	Specification	Qty.	Unit price
1	Reciprocating air compressor testing rig- For determination of Mechanical & volumetric efficiency of Reciprocating air compressor	Two stage reciprocating air compressor test rig To perform experiment: □ Volumetric efficiency of compressor □ Compression ratio □ Isothermal efficiency □ Polytropic index The system components should be: Two Stage Air Compressor air cooled (with fins) driven by induction motor of 2kW, Motor should be equiped with suitable starter and safety/protection sytems such as overheating etc. Air flow should be from inlet Air tank throughn an orifice and air filter and should be compressed in two stages. Compressed air from stage one enters through Inter-cooler to the stage second. Compressed air stored in the air receiver. Delivery pressure gauges one after first stage and another after second stage. It should be fitted temperature and pressure sensors to measure the temperature and pressure at different stages. Energy meter to measure input to motor. Air inlet tank with air filter and orifice with U-tube water manometer and safety valves. For inlet air volume measurement orifice. Multi channel digital temperature indicator for indicating temperature and pressure at various points. Energy meter for measurement of input to motor. Pressure gauge to measure intermediate and deliver pressure. Setup should have a Control Boards which should consists:- Energy Meter,U-Tube Manometer, On/Off Switch. Setup should confirm IS standards/ BIS / ISO certification. Warrantee certificate, user manual, experiment manual, parts diagram and list with all necessary accessories to conduct above listed eperiment should be provided by manufacturer.	1	
2	Flat plate solar collector with pump-For measure ment of collector efficiency of a Flat plate collector	solar-liquid flat plate collector testing set up should consist of one liquid flat plate collector ,flow meter ,suitable AC motor coupled to water pump with by-pass system and suitable safety /protectection system,20 lit capacity electrin immersion heater with suitable safety /protectection system and a heat exchanger for cooling of hot water .set up should be equiped with temperature and pressure gaugaes at all sailent points set should be capable of conducting experiments to show/calculate result for 1. efficincy, 2.heat loss factor set should confirm IS 12933-PART V(33) Warrantee certificate, user manual, experiment manual, parts diagram and list with all necessary accessories to conduct above listed eperiment should be provided by manufacturer.	1	
3	Solar panel -For testing & performance of Solar photo voltaic & solar panel	One panel each of 20 W, 50 W & 100 W Solar panel with battery backup (atleast for 3 hours)and charging arrangment. Set should have solar tracking and electrical illumination arrangment and should be supplied with adequet instrumentation gauges/ metre for reading required to conduct following experiment - (a) testing & performance of Solar photo voltaic & solar panel (b)output power ,current voltage Warrantee certificate, user manual, experiment manual, parts diagram and list with all necessary accessories to conduct above listed eperiment should be provided by manufacturer.	1	